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THE

AMERICAN FARMER.

DEVOTED TO

Agriculture, Horticulture and Rural Economy.

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

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JULY.

"Majestic Summer! pardon that my lays
Till now forbore to celebrate thy praise;
The fervid splendor of thy mid-day sun
With wonder strikes me, though its fire I shun,
I love thee most, whene'er thy potent rage
Or Autumn's breath or vernal gales assuage,
Though Nature pant beneath thy noon-tide power,
How sweet the freshness of the evening hour!
What time the night, throughout the gelid air
Veils with her sable wings the solar glare;
Then loves the eye, that shrunk before the day,
To drink refreshment from the moon's pale ray;
When modest Cynthea, clad in silver light,
Expands her beauty on the brow of night,
Sheds her soft beams upon the mountain side,
Peeps through the wood, and quivers on the tide."

WORK FOR THE MONTH.

WHEAT HARVEST.

The Wheat harvest, where it is not yet finished, will demand the closest attention. It cannot be laid aside until the crop is made entirely secure. This should be done, of course, as early as practicable after the crop is in condition to be harvested. Wheat may be better secured in the field if put up properly in bunches called "dozens" than in the common method of shocks. Much of it will be sprouted in the shocks in long spells of wet weather. There need be none in the other method.

HAY MAKING.

Clover Hay and Orchard Grass will have been already secured. Red top should be cut when in flower. Low land grasses liable to flooding, it is well to cut by the middle of the month. Timothy should be cut when the seed is in milk. It makes a much heavier crop at this time and of much better quality than if cut earlier. At this stage of the growth, the roots are less liable to injury by drought. Cut four inches from the ground. If cut too close the roots are liable to perish. To cure well it should lie but a few hours in the sun. Then it should be thrown lightly into small cocks until it sweats. Then it will be sufficiently exposed to the air, while being removed to the barn or mow in favourable weather.

BUCKWHEAT.

This grain may be sown up to the 20th of the month. About three pecks of seed is sufficient for an acre. Prepare the ground well and give a hundred weight of guano or its equivalent unless in pretty good heart. Plough under the seed with a light furrow, putting in the manure by the same operation. The grain is liable to waste in harvesting. It should be cut when the dew is on or in damp weather, and put into small cocks in the field for a short time. It is liable to mould if put in the barn too early.

FIELD PEAS.

These may still be planted.

MILLET, HUNGARIAN GRASS, BROAD CAST CORN.

Any of these may still be sown if an addition be wanted to your provender.

CORN.

If you find it necessary to give your Corn further working after harvest, it must be done with care in hot, dry weather. Go over the field, first working only every other row, and complete it by going over again, working the alternate rows which were untouched before. This will pre-

vent the tearing and cutting the roots on each side of the Corn at one time.

TOBACCO.

Under the present aspect of affairs, Maryland Tobacco growers may anticipate good prices for their crops, and those who have planted should use their utmost effort to get a full crop. It should be kept now thoroughly clear of grass, and in the nicest tilth, that a quick, unchecked growth may be secured. Worms should be kept down from their first appearance, and the poison for destroying the horn-blower used which we have so often recommended.

POTATOES.

It is not yet too late to plant Potatoes. Medium sized whole ones only should be planted now. Plant in a freshly opened furrow and cover immediately. Keep clean and well worked till they blossom.

RUTA BAGAS.

If these are to be sown, get the ground in order as early in the month as you can. Have it manured with four hundred weight of guano, or five hundred of superphosphate, or its equivalent in some other fertilizer. Or use twenty horse cart loads of pretty good farm-yard manure and half the quantity mentioned of guano. Sow from the 15th to the 30th of the month.

THE VEGETABLE GARDEN.

JULY.

Keep all garden crops that are growing, well worked and clear of weeds.

CABBAGES.

Set out plants for principal crop. About the middle of the month is perhaps early enough, but they may be still planted till it closes. Let the ground be well prepared and highly manured with anything but hog-pen manure.

CELERY.

This valuable winter vegetable should be planted out this month for principal crop. Moist, rich soil is best for it. The trenches should be manured with well rotted stable or barn-yard manure, well chopped in with the soil. Trim your plants, the tops to the length of six inches, and the roots to two inches. As soon as planted give them a plentiful watering, and shade them till they have taken root.

TURNIPS.

A small quantity for early use may be sown this month. For the winter supply the 10th of August is time enough to sow. In the meantime let the ground be well prepared.

CARDOONS, ENDIVES AND LEEK.

Set out plants of these for main crops.

BEETS AND CARROTS.

Seeds of these may still be planted and make good roots.

MANGOES AND CUCUMBERS.

Plant seeds of these for pickling.

CAULIFLOWERS.

Plants of these for winter use should be set out.

RADISHES.

The last of the month sow seeds for fall use.

SEEDS.

As seeds ripen cut off the stems and spread in a secure place to dry. When cured, rub them out and tie in paper or cotton bags, properly labelled.

HERBS AND MEDICINAL PLANTS.

As these come into flower, gather and dry in shade.

FRUIT GARDEN AND ORCHARD.

Examine budded and grafted trees and rub off buds that may have started from the stock.

Pick off punctured fruit, and gather all that falls and have it destroyed. A great increase of the villainous insect might be prevented by a faithful attention to this direction every week or so.

Large quantities of wasps, ants, and other insects that destroy the ripening fruits, may be trapped by hanging about the choice fruits phials of sweetened water.

Cut off suckers from the roots of choice trees. Cherries, Plums, &c. may be budded this month. Strawberry beds should be cleaned out and no runners allowed to grow except where new plants are wanted.

THE VINEYARD.

Growing vines should be kept properly tied up as they advance, and the ground kept quite clear of weeds and grass.

THE FLOWER GARDEN.

ANNUALS.

Plants of late sown annuals, as *Balsams*, *Coxcombs*, *Amaranthus*, China Asters, may be still set out. Take up with trowel, and water till they begin to grow, keeping the soil stirred about them.

BIENNIAL AND OTHER FLOWERING PLANTS.

Such of these as were not heretofore planted should be now set out in beds and watered and shaded till they root. Of these are Wall Flowers, Sweet Williams, Canterbury Bells, Gilliflowers. Let them remain in these beds till fall, when they are to be finally planted where they are to bloom.

PINKS.

Pinks of all kinds should be propagated this month by layers or pipings.

FLOWERING PLANTS.

Such as need support should be tied up to neat stakes. Cut off stems that are done blooming unless wanted for seed. Peg down *Petunias* and *Verbenas*.

HEDGES.

Hedges should be clipped in damp or cloudy weather.

GRAVEL WALKS.

Sweep and roll weekly.

THE GREEN HOUSE.

Seedlings and plants from cuttings put down in spring, may now be put in pots. Gather seeds of all sorts that are ripe. Oranges and Lemons should be thinned when bearing too full. *Azaleas* should be protected from sun and kept watered. *Camellias* may be repotted.

Air and Water.

The weight of the atmosphere is equal to that of a solid globe of lead sixty miles in diameter. Its principal elements are oxygen and nitrogen gases, with a vast quantity of water suspended in them in the shape of vapor, and commingled with these a quantity of carbon in the shape of fixed air, equal to restore from its mass, many fold, the coal that now exists in the world. In common with all substances, the ocean and the air are increased in bulk, and, consequently, diminished in weight, by heat. Like all fluids they are mobile, tending to extend themselves equally in all directions, and to fill up depressions wherever vacant space will admit them; hence, in these respects, the resemblance between their movements. Water is not compressible or elastic, and it may be solidified into ice, or vaporized into steam; the air is elastic; it may be condensed to any extent by pressure, or expanded to an indefinite degree of tenuity by pressure being removed from it; it is not liable to undergo any change in its constitution beyond these, by any of the ordinary influences by which it is affected.—*M. F. Maury.*

Preparation of Bones for Use.

The best and cheapest method of preparing bones for manure is, first, to boil them in strong ley a few hours, to extract from them the animal matter, or what would be more convenient, perhaps, break them as fine as convenient, and put them in a tub of ley to remain there during pleasure, until the animal matter is all extracted and incorporated with the ley. The mineral part of the bones will now be found very friable and easily pulverized. They should be rinsed clean, pulverized, and put into another tub or trough. Apply to them some diluted sulphuric acid, in the proportion of one of acid to five of water. Stir them frequently, and in a short time they will be entirely decomposed and fitted for use. These two masses, being equally rich in the elements of fertility, the one of ammonia and the other of phosphorus, are equally valuable as fertilizers, and adapted to any and every variety of soil that may be deficient in these elements, and equally necessary for the healthful maturity of every growing plant, whether of grain, grasses, or roots. I now advise a mixture of these two masses with the general compost, to secure a general diffusion of them upon the different fields to be manured. My reason for the general diffusion of these masses upon the different fields is, first, every plant needs them. Secondly, the farmer's resources, in this line, will be mainly within himself. This will be true of those that live at a distance from villages and cities. Their resources must be small. Thirdly, the elements of the bone, both animal and mineral, were taken from the different fields, and should, therefore, be returned to the same fields. To keep up the fertility of each field, it is necessary to return to it annually the same elements that are taken away. The farmer may secure a larger crop of any kind, on any field, by robbing other fields of the same elements of fertility to enrich that one. But such a policy would not only be bad, but ruinous if pursued.—*Country Gent.*

CLOVER ROOTS.—At the meeting of the Board at Watertown, President Geddes had some clover roots furnished him by a farmer in Onondaga county, one of which measured three feet eight inches, and the roots entered the ground as tap roots. The longest one was evidently broken off in taking up, and probably was six or eight inches longer, making it more than four feet; the others nearly as long. Such appendages as these to the clover plant, in friable soil, may well account for the great value of this plant as a fertilizer.—*N. Y. Jour. State Ag. Soc.*

Philosophy of Drainage.

A well-known fact with regard to under-draining is, that many soils, constituting a large portion, perhaps a majority, of the earth's surface, are all right by nature. They are so porous, both the surface and the subsoil, that water passes downward with sufficient freedom, and that the air traverses freely as far down as they are ploughed and subsoiled. What we want in a soil is, that it should be permeable to water and air, and should be so constituted chemically (have so much clayey and carbonaceous matter in it) that it will be *retentive*—that is, will not suffer the dissolved matters in rain water to pass through, nor the gaseous matters in the air to escape from it, but will hold them both for the crops. It should be understood that every drop of rain that falls on the soil brings manure with it, as also every particle of air in the soil. Thus, nature is always manuring our fields, so long as we stir the soil and keep it physically in a proper condition. On all soils passably well constituted chemically, her manuring is, and always will be sufficient to secure medium crops. We add to her manuring only because we have discovered (some of us at least) that there is more profit in large than in merely medium growths.

But although many soils are very well as they are, without underdraining, and are half manured, and always will be, by nature's operations, others are not. It pleased the all-wise Creator to leave a large portion, perhaps half, more or less, of the earth's surface in such a condition that it should afford a field for man's genius as well as his labor. These are, oftener than otherwise, the very best of soils, chemically endowed with all the ingredients required for an almost endless series of crops, but mechanically unfit for the highest culture, till the genius of man, added to the workings of nature, shall have prepared them for husbandry. Some have a clayey surface, through which water passes so slowly, that it drowns in wet weather and bakes in dry. Others have a porous surface, but an impervious subsoil, through which the water cannot pass, and so returns to be evaporated from the surface; and every particle that evaporates leaves a chill—makes the soil cold, sour, uncongenial to plant life.

Why can you not heat a kettle of water above 212°? Because, at that temperature, the evaporation carries off heat from the surface just as fast as you can infuse it from below by the hottest fire you can make, and so the temperature remains in *statu quo*. You cannot raise it above 212° unless you impede evaporation by pressure. Stop the evaporation, and you may heat water as hot as you can iron, but not while the evaporation goes on. And why does the man who works in your field in a hot summer's day suffer no more, perhaps less, with heat, than the lazy man who is standing about? Because the working man perspires. The moisture evaporates from his body and garments, and carries off all the artificial heat caused by exertion. The reader can now understand that evaporation from soil cools it. As the heat of the most tremendous fire you can make will not raise the temperature of boiling water in an open vessel, and as the laboring man is never heated above the natural temperature of the human body, so the soil cannot be heated above the point depending upon the joint action of the sun and evaporation—the one tending to heat it, the other to cool it. A soil but slightly moist on the surface, and with no stagnant water for three feet below, may be heated at noon-day to at least 120°; but it would be as impossible for the sun to heat a water-logged soil to that degree, as for you to heat an open kettle of water above 212° by thrusting fuel under it, or for a laboring man to heat his body above its natural temperature by hard work. Over a water-soaked soil, the heat of the sun, instead of insinuating itself among the particles of earth, is dissipated by evaporation; or, in other words, it is used up in evaporating the water, and not in warming the soil.

What we want, in regard to soils on which, or in which anywhere within three feet of the surface there is stagnant water, is a free circulation. Something is to be done, which will give the water a free passage in all directions. If the water circulates freely, the air will; for it may be laid down that wherever the water sinks in a soil the air follows it—is pressed in by the superincumbent air, weighing fifteen pounds to every inch of surface, which amounts to a pressure of 2,160 pounds to the foot, and 58,806 pounds on each rod. No one doubts that the fish at the bottom of the ocean are living under a heavy pressure; but not every one has reflected that we are living at the bottom of an ærial ocean, the pressure of which is in all directions, and amounts to thirteen tons on a man of medium size, and is quite sufficient to press air into the ground and among all the particles of the soil, as soon as the excess of water is drained off. Take out the water, and the air will follow of course. The particles of soil will touch each other, but being rough and irregular there will be spaces between them, and these will be no longer filled with water but with air, and both the moisture and

the air will circulate freely, and will both give up their manurial properties to the soil. If in digging into a soil, the moisture is very unequal —the surface almost dry, and the soil at any point not more than three feet below very wet— there is something wrong in that soil; for, if the water at three feet below the surface could pass freely downward, the water in the next stratum above would fall into its place, and so on upward to the surface.

There wants to be an equalization of the water, for three feet downward, so that the surface shall not become entirely dry by a long suspension of rain, nor be excessively wet after heavy rains. All this can be effected by drainage. Lay down your drains thirty feet apart and three feet deep, or forty feet apart and four feet deep, or fifty feet apart and five feet deep, and very soon, the bottom water being taken off, all the surplus water above will have fallen, the soil will have crumbled, the moisture will have equalized itself, air will be in circulation throughout, and you will need have no fear of drenching rains and may laugh at the drought. It seems strange (to those who do not comprehend the reasons), but is true nevertheless, that underdraining affords a perfect guarantee against damage both from drought and from excessive rains. The principal benefits of drainage are the following:

1. It prevents washing, by admitting a sudden fall of rain quickly into the ground, leaving little to run off.

2. It enriches the soil, by causing it to absorb the rains quickly, to lixiviate them, and to retain for the use of plants their carbonic acid, ammonia, and other manurial matters, instead of running them off together with some of the richest top soil into a neighboring brook.

3. Stiff soils are more easily worked. In such a soil you can plough eight inches deep with a less draft than it would have before required to plough six; and the soil will fall from the mould finely pulverized instead of falling in lumps.

4. All kinds of manures will have a quicker and a better effect.

5. Seed time will come earlier. Fall frosts will hold off later; and thus the season will be prolonged. In the North this is a great advantage, for our seasons are too short at both ends.

6. A greater variety of crops can be grown, and so a wider choice and a more perfect rotation be practised.

7. Drained land will continue longer to give crops without manure than undrained, because the roots have a wider range for food, and when manured will give a greater increase for the same amount of manure.

8. When laid down to grass, they will not deteriorate as soon, and for the reason that the grass-roots penetrate deeper, the pasturage will be more uniform through wet and dry weather, and will be earlier in the spring and hold out later in autumn.

9. Drainage improves the climate. From the effect on the soil, and especially by diminishing evaporation, we might safely infer that its tendency would be to dry the atmosphere, to free it from miasms, and render it more conducive to health. But we are left to no doubtful inferences. In England, in the well drained regions, the average of human life has actually been prolonged several years, under circumstances where it can be attributed to no other cause.— *World.*

Existence of Nitrogen in Plants—Its Origin in Animals.

BY CHARLES T. JACKSON, M. D.

Many years ago, while a student of medicine, the writer essayed to prove, by exclusion, that animals derived their nitrogen from food, and that since exclusively herbivorous animals apparently contained as much nitrogen in their tissues as carnivorous ones, he argued that the nitrogenous element of plants must have been overlooked by chemists and physiologists. We were taught in those days that nature produced all the varied products of the vegetable kingdom by means of the three elements, carbon, hydrogen and oxygen, and that animal matter differed from vegetable, owing to the addition of nitrogen. Organic chemistry, then almost unknown, or certainly in its infancy, had not disclosed the fact of the existence of nitrogen in vegetable matters, in nearly the same proportions as in those of animal origin. It had, indeed, been observed that cabbages, turnips, and some other plants of the cruciferous order, on putrefaction gave out the sulphide of ammonium, then called hydrosulphate of ammonia, a fact which pointed to the existence of sulphur and some nitrogenous ingredient in plants of that order, but this was considered an exception to the rule. Notwithstanding the proofs that animals do not derive their nitrogen from the atmosphere by pulmonary or by cutaneous absorption, and that there was no other way by which this element could be introduced except by the stomach, in the form of food, and that animal life could be sustained by an exclusively vegetable diet, the books on chemistry, botany and physiology continued

to ignore the existence of nitrogen in plants.—At length analytic chemistry reached into the domain of organic products, and Dumas, Cahours, Liebig, and others demonstrated that vegetable matters contain nearly the same proportions of nitrogen as those of animal origin. There still exists a doubt as to the mode of combination of the elements in these two forms of matter, and it is highly probable they will prove additional instances of isomerism. We know, for instance, how readily we can distinguish most animal matters from those of the vegetable kingdom by the simple test of combustion. A portion of animal fibrine, albumen, or gelatine can thus at once be distinguished from any vegetable product, the so-called animal odor in the smoke being readily recognized. A single fibre of cotton, or of linen, may thus be distinguished from one of silk or of wool, the two last giving the odor peculiar to animal matter, on combustion, while the two former give the smell of burning wood or paper.

Animal matters, on being heated to a temperature sufficient to decompose them, break up chiefly into nitrogenous compounds, while vegetable matters of identical composition break up under the same circumstances into hydro-carbon and water. Here, then, is a curious and important department of organic chemistry for further examination. Recent experiments on the production of oils, paraffine, and numerous other valuable products of decomposition of vegetable matters at regulated temperatures, have thrown much light on the phenomena of decomposition and recomposition of organic substances. The matters which we obtain by distillation did not pre-exist in the substance decomposed by heat. For instance, there is no paraffine in peat, but it is produced by a re-combination of the hydrocarbonaceous elements, at a certain temperature. Bituminous coals contain no bitumen, as may be proved by digesting them in benzole, which would at once dissolve it if any existed in the coal.

If we heat the coal until it softens, we produce bitumen abundantly, and it may now be dissolved out by the aid of the benzole. Only one kind of coal—that called asphaltic coal—yields any bitumen before it is roasted. The Albert, N. B., coal yields 15 per cent. of soluble bitumen, but this is an exceptional case. Again, paraffine, according to the researches of Mr. Atwood, is capable of being again broken up into volatizable and permanent oils, and many heavy oils have been by him re-arranged in their elementary combinations, so as to give entirely new products. These are examples of charges effected in organic matters by the agency of regulated heat.

By the assimilatory powers of animal organism, more wonderful changes are effected in vegetable matters. All the complicated fluids and solids of the animal body are brought forth from the elements of food, and the vegetable proximate principles have their elements re-arranged and adapted to the purposes of animal life. It is probable that the animal economy cannot tolerate, in the circulatory system, any purely vegetable combinations of matter, and that, if the conversion into animal combinations does not take place, the introduced matter acts as an irritant, and is expelled by the secernent organs. Sugar, as such, certainly acts as a powerful irritant on the kidneys, as is shown by dissection of a diabetic subject.

The failure of the organs in the conversion of this substance into proper circulatory food is now well known to be due to a disorder of certain of the spinal nerves, or to the medulla oblongata.

Oil, injected into the blood, acts as a poison, because it has not been carried through the regular organs for its assimilation. Both sugar and oils are good respiratory food, but they must first be introduced through the organs of digestion, and be carried in succession through the various organs instituted for their preparation. Milk, in any other organ than the stomach, will not act as food. Injected into the blood, it would prove an irritant if not a poison, for its elements are not so combined as to fit it for the circulatory vessels.

In order to explain how closely animal and vegetable proximate principles resemble each other, as shown by ultimate or elementary analysis, I subjoin some of the results of analyses made by Dumas and Cahours, still calling attention to the fact that these bodies do differ in the mode of combination of their elements as before stated:

	Vegetable Albumen.	Albumen of Eggs.	Albumen of Serum.
Carbon	53.74	53.37	53.82
Hydrogen	7.11	7.10	7.29
Nitrogen	15.66	15.77	15.70
Oxygen	23.50	23.76	23.69

	Fibrine of Flour.	Of Human Blood.	Of a dog fed on bread 2½ months.
Carbon	53.23	52.78	52.57
Hydrogen	7.01	6.96	7.07
Nitrogen	16.41	16.78	16.55
Oxygen	23 35	23.48	23.81

	Casein of Flour.	Of Woman's Milk.	Of Cow's Milk.
Carbon	53.46	53.47	53.50
Hydrogen	7.13	7.13	7.05
Nitrogen	16.04	15 85	15.77
Oxygen	23.37	22.57	23.68

It will be seen that these matters are nearly of the same composition, as shown by elementary analysis; but still, under the test of destructive distillation, animal and vegetable substances will break up into entirely different products, and by their known difference in digestibility it would appear that they are differently acted upon, and undoubtedly different organic products are formed from them in the organs of assimilation.

It should be noticed, also, that the small proportions of sulphur and phosphorus, or their salts, which exist in those proximate principles of animal origin, and not in those derived from vegetables, are not considered in Dumas' analyses above quoted. In the process of nutrition, of course, these elements are of great importance. However, it will be seen that in ultimate analysis animal and vegetable matters are essentially alike; that the pure fibrine of the oak and that of the human heart cannot be distinguished by such analysis, though by simple combustion in the flame of a candle, we may know which was from the vegetable and which from the animal. —*Boston Medical and Surgical Journal.*

Is Guano Nought but a Stimulant?

The first sample of guano is reported to have been taken to Europe by Humboldt in 1806. In 1840 a few barrels were imported into England; and from that time down to the present the quantity imported has increased with the increasing demand until the annual consumption has reached 240,000 tons, equal to 537,600,000 lbs., and calling 60 lbs. to a bushel, 8,960,000 bushels. And yet notwithstanding this immense importation of Peruvian guano by one of the most skilful, learned, successful and frugal agricultural people known at the present epoch of the world's history, there are those who assert that "guano is not a fertilizer but a 'stimulant' causing an artificial or forced growth by which the plant takes from the soil more fertilizing matter than the guano brought to it." Its influence has been further compared "to that of brandy upon the human system, denying that it is a fertilizer and affirming that it is a stimulant."

A fertilizer is defined to be a manure, organic or inorganic, and it is applied to soils where it acts sometimes in the double capacity, not only as plant-food but as a chemical agent upon the soil, forcing it to give up what is essential to the nutrition of plants which otherwise would be unavailable to the growing plants, and therefore practically, so far as an immediate crop is concerned, might as well not be in the soil.

The following minute analyses of three specimens of Peruvian guano is taken from Professor Anderson's tables, showing all the different constituents it contains, and the amount of difference which may exist:

	I.	II.	III.
Urate of ammonia	10.70	9.0	3.24
Oxalate of ammonia	12.38	10.6	13.35
Oxalate of lime	5.44	7.0	16.36
Phosphate of ammonia	19.25	6.0	6.45
Phosphate of magnesia and am.	....	2.6	4.20
Sulphate of potash	4.50	5.5	4.25
Sulphate of soda	1.95	3.8	1.12
Sulphate of ammonia	3.36	....	....
Muriate of ammonia	4.81	4.2	6.50
Phosphate of soda	....	....	5.29
Chloride of sodium	....	....	0.10
Phosphate of lime	15.56	14.3	9.94
Carbonate of lime	1.80	....	....
Sand and alumina	1.59	4.7	5.80
Water	9.14		
Undetermined humus-like organic matter	10.00	32.3	23.42
	100.48	100.0	100.00

These examples show different stages of decomposition; *e. g.* the quantity of urate of ammonia is less in the last example than either of the former, and much less than in fresh dung which contains from 50 to 70 per cent. of uric acid; and 2dly, that guano is rich in all the constituents of plants, and especially so in ammonia, the best form in which nitrogen can be supplied, in uric acid which by decomposition yields ammonia, and in phosphoric acid. And notwithstanding this we are told that "guano is not a fertilizer, but a stimulant." Before, however, proceeding to speak of "a stimulant," I will invite attention to the analyses of the excrements of the horse, cow, sheep and swine, as given in Prof. Anderson's table.

The percentage of water in the fresh excrements of the animals named, is as follows:

	Horse.	Cow.	Sheep.	Swine.
Water	77.25	82.45	56.47	77.13
Ash in the dry ex't	13.36	15.23	13.49	37.17

100 parts of the ash contained:

	Horse.	Cow.	Sheep.	Swine.
Silica	62.40	62.54	50.11	13.19
Potash	11.30	2.91	8.32	2.60
Soda	1.98	0.98	3.28	3.44
Chloride of sodium	0.03	0.23	0.14	0.80
Phosphate of iron	2.73	8.93	3.98	10.55
Lime	4.63	5.71	18.19	2.63
Magnesia	3.84	11.47	5.45	2.24
Phosphoric acid	8.93	4.75	7.52	0.41
Sulphuric acid	1 83	1.77	2 69	0.90
Carbonic acid	....	trace	trace	0.60
Oxide of manganese	2.13	....	....	....
Sand	....	....	....	61.37
	99.80	99.29	99.64	99.82

The organic constituents of plants are carbon, hydrogen, nitrogen, and oxygen. The inorganic are potash, soda, lime, magnesia, peroxide of iron, silicic acid, phosphoric acid, chlorine, and more rarely manganese, iodine, bromine, and fluorine, all of which are obtained from the

soil and the atmosphere, the latter being the great depository of plant-food.

Having shown that guano is rich in all the constituents of plants, as compared with the solid excrements of the horse, cow, sheep and swine, it is deemed worth the while to consider the assertion that "it is a stimulant," and "not a fertilizer." A stimulant is something that has power to exercise organic action, as alcohol, pepper, mustard, or anger, shame, revenge and other emotions. It is denied at the outset that plants are the subjects of stimulation in any such sense as stated; and in the second place, that guano is not a stimulant in any such sense as affirmed, but on the contrary is real plant-food, and is, therefore, a fertilizer, as are all animal excrements, more or less rich according to kind, quality and other circumstances; and why should guano be not thus rich, for it is a highly concentrated animal excrement, mixed with feathers and bones, being therefore exceedingly rich in the elements of plant nutrition.

Alcohol, or brandy, *e. g.*, as has been stated, is a stimulant; for when brought into contact with the sensation nerves and blood-vessels of an animal it produces irritation, which is called stimulation; but guano being devoid of stimulation, and as plants are destitute of both blood-vessels and sensation, it is simply absurd to liken the action of guano upon plants to that of brandy upon animal organisms, having both blood-vessels and sensation.

Mr. P. B. Pendleton of Virginia, a chemist who has experimented largely with guano, and written voluminously upon the subject, says: "there are those who talk flippantly and fallaciously of guano as having in its application to soil, an inevitable tendency to effect sooner or later its complete and hopeless exhaustion by depriving it of its mineral elements. But this theory is wholly false, both in premises and conclusions. The fact is, the aggregate amount of mineral matter applied in the application of guano, is nearly double and of the phosphates more than double that extracted from the soil by an ordinary crop of wheat, or other product; and besides, there is no proof that the quality of soils do not contain an ample sufficiency of mineral elements to meet a judicious rotation of crops, for centuries to come." In this view other distinguished agriculturists in Virginia, Maryland, and other Southern States fully concur, with Northern farmers, both speaking from experience and observation.

Hence, whatever may be thought of the economy of using guano in Massachusetts and New England generally, all intelligent farmers must agree with the best chemists on both continents that Peruvian guano is a fertilizer, *rich* in the elements of plant food, and is no "stimulant" as asserted. Much corroborative testimony might be given, but let this suffice; remembering meanwhile that England imports annually 240,000 tons of Peruvian guano.—*Boston Cultivator.*

How to Salt and Preserve Beef and Ham.

We have selected the following receipts and submitted them to a notable housewife, who pronounces them good:

Salting Beef for summer use.—16 qts. of salt, and 4 oz. of saltpetre for each 100 lbs. beef.—Rub the pieces all over with salt, and pack it in edgewise, and after a layer is completed, take an axe or maul and pound down solid. Then sprinkle on a little saltpetre and fill up all interstices with salt, and so on until the cask is full. Those who do not like saltpetre may omit it without injury to the meat.

Mr. A. Wanzer, who communicated this recipe to the *Albany Cultivator*, says he has salted his beef in this way for fifteen years, that it needs no soaking before boiling, and will be tender and sweet the year round. By this way of salting it makes its own brine, and never wants repacking, nor the brine scalding. If the brine should not cover it in the spring, sufficient may be added for that purpose.

Take a barrel and turn it over an old pan or kettle, and burn cobs or hard wood for seven or eight days, keeping water on the head of the barrel to prevent its drying.

Make a pickle as follows: 6 oz. of saltpetre, 2 qts. of molasses, 3 gallons of water, for each 100 lbs. of ham. Boil and skim the pickle thus prepared. Pack the ham in the barrels, and when the pickle is cold, pour it on to the meat, and in four weeks it will be excellent, very tender and well smoked.

Another.—Make a pickle as follows: 5 qts. of molasses, 5 oz. of saltpetre, and 3 gallons of water, for each 100 lbs. of beef or ham. Boil these over a gentle fire, and skim off the scum as it rises. Pack hams with the shank end downwards, and when the pickle is cool pour it over them or the beef. They will require to lay in the pickle from two to six weeks, according to the size of the pieces and the state of the weather—as they require to lay in the pickle longer if the weather is cold.—*N. England Farmer.*

The New Mown Hay.

BY CHARLES MACKAY.

When swallows dart from cottage eaves,
And farmers dream of barley sheaves;
When apples peep amid the leaves
And woodbines scent the way—
We love to fly from daily care,
To breathe the country buxom air—
To join our hands and form a ring—
To laugh and sport—and dance and sing,
Amid the new-mown hay.

A stranger comes with eyes of blue;
Quoth he, "I'm Love, the youth and true;
I wish to pass an hour with you,
This pleasant summer day."
"Come in! come in! you saucy elf!
And who's your friend?" "'Tis friendship's self."
"Come each—come both, our sports to share;
There's welcome kind, and room to spare,
Amid the new-mown hay."

The ring is formed; but who are these?
'Come, tell your errand, if you please;
You look so sour and ill at ease,
You dim the face of day."
"Ambition!" "Jealousy!" and "Strife!"
And "Scorn!" and "Weariness of Life!"
"If such your names, we hate your kin;
The place is full, you can't come in
Amid the new-mown hay."

Another guest comes bounding by,
With brow unwrinkled, fair and high—
With sun-burnt face and roguish eye,
And asks your leave to stay.
Quoth he, "I'm Fun, your right good friend!"
"Come in! come in; with you we'll end!"
And thus we frolic in a ring—
And thus we laugh, and dance, and sing,
Amid the new-mown hay.

Fruit Trees in Shrubberies.

I should like to see the apple and pear in more general use as ornamental plants, and want to know why they are not more frequently planted in places of moderate, or even limited extent, as suburban and villa residences, by intermixing them with common shrubbery plants. For cottage ornees they are peculiarly adapted, and in the former places might be planted to a considerable extent, and would add greatly to the beauty of residences at this season of the year; and afford in the autumn some compensation, by way of set off, by contributing a supply of fruit in places where there is generally a want of it. The great beauty of the bloom of some varieties of apples and pears would of itself entitle them to a place in our grounds, solely as ornamental plants; and I wish you could persuade nurserymen to make a selection for this purpose, as I imagine many country gentlemen would be induced to purchase them for their parks and homesteads for this property alone, if good-sized plants could be procured; and that proprietors of small places would be glad to introduce them. I say nothing of the Chinese apples and pears, which are just now in bloom, and worthy of all the admiration they call forth; but having noticed for several seasons how really beautiful the bloom is of many varieties of apples, I venture to suggest the matter to your readers. As for the pear, it is, when old, one of the most picturesque trees to be met with, and for parks and home grounds invaluable as an ornamental tree, when in bloom. I strongly advise planters to try the Beurre Rance pear, and three or four other new varieties; these have fine foliage and flowers and a strong habit of growth, which, as they grow old, would prove useful ornaments to landscape scenery.—*Florist.*

Management of Pastures.

In the Transactions of the Highland Horticultural Society of Scotland, we find an interesting article on the top-dressing and general management of pastures, by James Porter, which we have perused with satisfaction, and now give the substance to our readers. It is an important subject to American farmers—one which we have before urged upon their attention, and notwithstanding difference in climate, &c., the experience of this Scotch farmer cannot be studied and tested without profit.

When land under cultivation is in a high state of fertility, and is carefully sown with a full and well-selected mixture of grass seeds, it will often produce good grass for several years without any additional manure. This is so far fortunate for the cultivator of the land; for if the wide extent of arable land in pastures had to be regularly top-dressed in rotation, the system would be very laborious and costly. I do not wish it to be understood, however, that manure will not pay on this description of land; on the contrary, when soil and climate and other circumstances are favorable, I have found a good dressing of light manures to the first and second year's grass prove very remunerative. After varied and numerous trials, for many years, of a great variety of artificial manures, I have come to the conclusion that guano, sulphate of ammonia, nitrate of soda, and soot, are the best light dressings for new grass land that can be applied. The large proportion of nitrogen which these contain in a state easily assimilated by plants, by its great power in developing the blade, makes such manures peculiarly suitable for the growth of young grass. To render these manures fully efficient

however, it is very desirable that they be sown in rainy weather. It is needless to add that if the manures be not quite genuine, a partial failure must be the result.

On light land, with a gravelly subsoil, I consider it a mistake to use these manures as a top-dressing to grass, for when applied to such I have seldom seen them do much good; and, in an unusually dry season, I think they can by no means be beneficial. For such soils I would prefer well-made compost of bones, urine, vegetable mold, and salt. When near the sea, I have used a compost of sea-weed and fish refuse, &c., in the following proportions: Say 12 loads of mold, 4 loads of sea-weed, 1 load of fish refuse, and 2 tons of cattle urine. This makes an excellent and substantial dressing for one acre of light land. When it is laid on during the winter months, its good effects on the grass in the spring are all but certain; and within a short distance of the seacoast it may be supplied for about 28s. an acre.

So much for the manuring. I shall now state a few facts which I believe to be important regarding the management of these pastures.—Heavy rolling in autumn and spring, when the land is moderately damp, does much good; for, besides making a smooth surface, it packs the soil about the plants, and tends to make them spread laterally, and form a closer sward. Frequently changing or shifting the stock on the grass, and having it well eaten down at proper periods, but not too bare, are the best means of keeping the pasture in a good and growing state. It is always bad management to allow the grass to run to seed, seeing that it weakens the vigor of the roots, and tends much to exhaust the soil. It is, in particular, absolutely necessary that all weeds be cut early in the season. Whenever, indeed, they show their tops above the ground, they should be cut a little under the surface of the grass with a sharp tool, by which process the sap vessels of the plant are left open, so as to bleed profusely, and also admit the rains, which all tend considerably to destroy the roots. It is, at the same time, desirable to keep the surface smooth, by spreading the mole-heaps and droppings of the cattle; for by attention to these simple operations, the luxuriance of grass lands is always much increased.

For the destruction of moss and the general improvement of permanent pastures, a series of experiments were tried on land that had been laid down, and that had become almost worthless. Lime, farm-yard dung, Peruvian guano, nitrate of soda, sulphate of ammonia, superphosphate of lime, sulphate of potash, were tried, each acre receiving a dressing of manure of the value of about $10. The Peruvian guano and the sulphate of ammonia were the only manures that caused an increase of crop the first year sufficient to pay cost. The extreme dry season was unfavorable to the experiment. Mr. P. says:

On some of the plots the extra produce of hay will do little more than pay the cost, while in others the price of the manures is nearly altogether lost. It must also be borne in mind that the soil is good, and well sheltered from the drought; otherwise the results might have been still worse than they are. The saline manures, it is to be expected, will do little if any good next year. The second crop of grass looks a little more fresh after them, but they have done little indeed in extirpating the moss. The dung and the compost will no doubt be more permanent; the latter in particular appears to have already done a good deal in destroying the moss. The lime was against rather than in favor of the hay crop, but at present (20th October) its good effects upon the pastures are becoming quite apparent—the moss is considerably decayed and the surface already feels much firmer to the foot; the white clover is beginning to sprout up thickly and the whole surface appears greener and feels firmer than that of any of the other plots. The effects, it is to be expected, will gradually become more visible as the lime sinks into the soil, and I have little doubt that, in the course of a year or two, its beneficial effects will be far more apparent.

For this description of pasture land, particularly where the soil is rich in vegetable matter, and inclined to clay, powdered lime has the most powerful effect in renovating the grass of any substance I have ever tried. It at once cleans the surface, kills insects, decomposes decaying vegetable matter, and raises a close sward of sweet, nutritive grasses, including considerable quantities of white clover, and cattle will prefer the grass growing on the limed land. Light dressings, and repeated when necessary, is, perhaps, the best way to apply lime. I found two tons an acre to be perfectly sufficient; and the autumn or winter months will, no doubt, be the best time for applying it to the land. Where the land is much infested with moss, it will not, perhaps, extirpate it entirely, but it destroys it more than any other manure I have tried, and thereby prevents its choking the grasses—at least for a good many years after. It is quite clear that mossy pastures should be well torn on the surface before spreading on manures of any descrip-

tion, which would allow them to be better covered from the action of the weather, and give them a much better chance of destroying the moss.

The plots experimented with were harrowed before the application of the manures, but a better machine than the common harrow, for scraping grass land, is much needed, and the attention of manufacturers of agricultural implements is called to this want. The results of the experiments are thus summed up:

1. On strong soils on lands under cultivation, guano, sulphate of ammonia, nitrate of soda, and soot are the best, and they will prove remunerative if the weather is not too dry.

2. On light soils in alternate husbandry, composts of earth, bone dust, cattle urine, salt, seaweed and fish refuse are the most suitable.

3. For old grass on strong soils, powdered lime is the most effectual dressing that can be applied.

4. For old grass on light gravelly soils, clayey compost, mixed with quicklime, bone dust, and salt, makes a good dressing, and peat and wood ashes produce an excellent effect. Should all these fail to make good pasturage, then certainly it ought to be ploughed up.

We are told by Professor Johnston that the bones of the sheep contain 70 per cent. phosphate of lime; and that a milch cow carries off annually 30 pounds of bone dust from the land; and if this waste is to be supplied, as it certainly ought, there can be no better way of doing it than by adding bones, lime, and other phosphatic manures to the land. Let our grazing lands, then, be liberally dressed, where necessary, with these manures, and we shall have abundance of grass.—*Louisville Journal.*

Producing Double Flowers.

The Germans, it is known, are very successful in growing seed of asters, stocks and balsams, that produce double and beautiful flowers. This is done by growing the plants crowded in pots, in a very poor soil, until the blossom buds are forming, when they are liberally watered every day with rich liquid manure. The effect is a few fine seeds that will produce perfectly double flowers instead of a great many poor seeds. Mr. James Eadie, in an essay read before the Progressive Gardener's Society, of Philadelphia, alluded to the fact in the following terms:

"Much depends upon the state of growth of the parent plants; if they are growing very luxuriantly previous to setting their seeds, the seedlings will prove strong growers; but if, on the contrary, the plants are weak, and when setting, and while maturing seed, are stimulated into a strong and vigorous growth, the fruit will be larger, and the tendency to produce double flowers very much increased.

This is a fact well known to the German florists, who are proverbial for producing double balsams, asters and stockgilly flowers. It also explains the reason why the dahlia and hollyhock flowers remained so long single, although the plants were as strong growers then as now, and why their seedlings are so certain to degenerate, no matter how strong the plants are, unless every means are taken to stimulate them while setting and maturing seed. It may also explain why tulips and pansies are so generally produced single at this day, as any stimulus given to them, while in flower, causes the colors to run and intermix, thus spoiling their beauty in the eyes of critics, for any tendency to double flowers in these plants is accompanied by defective coloring.

The best raiser of the stockgilly that I ever knew, used to grow his plants in very small pots and poor soil, until the blossom buds began to form; he then planted them out in a bed of rich soil, and supplied them liberally with manure water, until the seeds were ripe, and from seeds so produced, he had always a large proportion of plants that had double flowers, and the plants of a fine dwarf habit which would not be the case when the stimulus was applied during all the period of growth."—*Ex.*

Spaying Cows Does Not Increase the Flow of Milk.

Much has been written of late in reference to the late great discovery (?) of spaying cows for the purpose of increasing the quantity as well as the quality of the milk, and, as we also suppose, of doing away with the *unnecessary process of nature*, namely, breeding stock.

Persons who chance to pick up a daily paper, or monthly agricultural journal, are induced to believe from the accounts published therein in reference to spaying cows, that some great and novel discovery has been made whereby all a farmer has to do is to purchase a cow, get the ovaries removed, and ever after—that is, so long as the animal may chance to live—all he has to do is but to place a bucket underneath the mamma, use slight manipulation to the same, when there will immediately issue a stream of the rich fluid "termed milk," almost without limit as to quantity and quality. To inculcate ideas of this nature into the minds of farming men, who have not, perhaps, that amount of scientific know-

ledge they might have, is not only wrong, but has its injurious effect in many other ways.

That the spaying of cows is spoken of as a new thing appears to me to pertain to the nonsensical, from the fact that it has been constantly practised in Europe for the last twenty years to my own knowledge; but not for the same purpose the *discoverers* in this country are now endeavoring to raise so much excitement about, *i. e.*, for the purpose of increasing the quantity and quality of milk.

In Europe it is practised for the purpose of producing an entirely contrary effect. Furthermore, it is practiced there, not as an experiment, but as a process "fully demonstrated," whereby the animal becomes of more value to the grazier than when kept in her natural state.

Many persons, no doubt, will ask, why should animals become more valuable to the grazier after having been spayed than before? The reason is accounted for in the following manner: Stock, after having been spayed, become in a short time dull and lazy; they are quiet in the pasture; free from the periodical estrum, the latter of itself being of much benefit, for at this particular period all cattle become weakened and lose flesh, which, consequently, takes time to make up again.

As regards such cattle as have had a calf, and are giving milk, the grazier finds that by spaying them the milk gradually becomes absorbed. The period of estrum appears to cease altogether. The animal becomes sluggish, sleepy, and fat, a consummation devoutly to be wished for by every grazier. But should the animal not have been spayed the difference would have been as follows: Firstly, the animal would have continued giving milk for some time. Secondly, the estrum would have returned regularly.—Thirdly, the animal at this period instead of gaining beef would lose it.

There is also another well known fact to which I would direct attention, and which I have no hesitation in saying, would be vouched for by almost every intelligent cattle dealer in Europe, and this is, that spayed heifers are always considered to be more profitable to the butcher than other cattle, for the following reasons: That they invariably weigh heavier than they are judged to be; that they produce more offal fat than the majority of other cattle; that the lean portion of the beef is beautifully intermingled with fat; that the sides are thicker; that the beef is more tender, and is believed to have a finer flavor than other beef.

Now to suppose that by acting in contradiction to the laws of nature, and cutting off the first source of the flow of milk, that it should have the effect of increasing that flow as well as improving the quality, is, in my humble opinion, contrary to every law of science or common sense. For we well know that when the animal is deprived of the ovaries when young, and before the estrum comes on, that the secretion of milk thereafter is entirely prevented. If, then, we have this effect produced before the animal arrives at a proper age to secrete the milk, what in the name of common sense should lead us to suppose that by cutting off the great first cause of this secretion, "if we may so term it," we should thereby increase the quantity and quality of the milk thereafter, as long as the animal should chance to live.

If these extravagant views were correct, the farmer should rejoice for more reasons than this. There would be no alarm about milk fevers, the chances of safe delivery, abortions, and many other little annoyances, for all these would be forever banished. But, again, it may be asked, why spaying should make beef if it won't make milk? As regards this question we shall not have much difficulty in arriving at a satisfactory conclusion. In the first place, as I have before observed, the estrum is cut off, consequently the animal does not lose the flesh she would otherwise have done at this period had she not been spayed. Secondly, she becomes lazy, which has a tendency to accumulate fat. Thirdly, the desire to reproduce her species having left her, the nutriment which makes milk to supply her young goes to the support of the general system. It is turned into other channels, resolving itself into fat, thereby producing what we may very properly term disease, as everything which is at variance with the laws of nature is diseased, no matter in what form it appears. So it is in this case; nature intended that the cow should reproduce her species, and that a certain amount of the nutriment contained within the body should be formed into milk to supply the young with sufficient support. But this law of nature being cut off, the nutriment intended for this particular purpose being no longer required, is retained within the body, and stowed away in the form of fat. Hence it is that spayed heifers get fat sooner than those which have not been spayed. Their bodies become more solid, and, as a natural result, weigh more. If the gentlemen that are so enthusiastic on this subject will but wait until such time as they are thoroughly convinced as to the result of their experiments, and then make a true and unvarnished statement

of the facts, I have not a particle of doubt in my own mind but they will coincide with my ideas on the subject, fully convinced that spaying does not increase the quantity or quality of milk, but is the means of stopping it altogether. —G. W. Bowler, *in Spirit of the Times.*

The "Weed and Insect Destroyer" Association; or, Feed the Birds.

Mr. Editor: When we go to Europe, especially to western Germany, we are surprised at the multitude of birds there, in comparison with those of our own land; and the cause of this scarcity with us is generally considered to be the wanton destruction committed on the feathered tribe.

This supposition is certainly correct to a very great extent, and is no commendation to the moral state of our society; but there is another circumstance by which our birds are destroyed annually to a still greater extent. This is, the excessive character of our climate. Sudden changes from mild spring weather to most furious blasts of severe cold, sinking the mercury in Fahrenheit forty degrees within six hours, as we have seen it during last winter, are enough to kill any bird, especially when it suffers at the same time from hunger.

It was, then, as much from sympathy as from any other motive, that we resolved to feed these little sufferers. We had but a small company of them during the first winter; but the following summer we found that we were less troubled with certain insects, especially caterpillars and tree-borers, the latter having been very destructive to some of our plants.

When autumn came again, we commenced feeding much earlier, and secured by that a much larger company of boarders for the winter, and by them the amount of work done on our premises in proportion; for the birds are never idle, and the better they are fed the more active they will be. And they soon learn to know their benefactor. While walking through our garden and orchard, they will actually follow us, expressing their confidence and gratitude in sweet and pleasing notes; and while they are at the same time busily engaged in their work, we notice that every tribe of these birds have each their own particular office assigned to them by nature, or, (what is the same,) by their Creator. Here we see a flock of the common snow-bird, so named from the circumstance of their appearance during deep snow, as then they are prevented from prosecuting their natural employment.—Every weed stalk which carelessness had left to ripen its seed is diligently looked for, and every grain of seed picked up. There, at an old apple tree, and in the corners of some ancient fence posts, are four or five individuals of the small blue woodpecker, (*Sitta,*) in search of the hidden "Turks;" while an army of the *Parus* family, (titmouse,) twist around every twig a dozen times during the winter, permitting no possible escape of a single egg that might produce an insect. But, behold the grave-looking *Picus minor*, with the small red band at the back of his head, hammering away for nearly an hour at one spot in an old lilac tree just opposite our window; and although the day is cold, and snow-flakes float from all directions, he does not give up until the rascal there hidden is cut free and leisurely drawn out.

Where, then, is the planter or the digger, old or young, who would not give protection to aids like these? The task is easy, and affords an amount of true pleasure during the hours of dreary winter, and abundant reward in summer. Provide yourself in due season with three or four bushels of black walnuts, some hemp-seed, millet, and oats, and you are provided for as large a flock as you may likely draw together. We try to feed the snow-birds separate from the insect-eaters, by throwing some oats, millet, and a little hemp-seed on the ground of the south side of a stable, or on a board a little elevated, so that they are not annoyed by cats while they are eating; while the woodpeckers, &c., are fed with the cracked walnuts, hemp-seed, and once a week a little fine cut bacon, all put together in a shallow drawer, which we fasten under a window which opens just above the roof of a verandah. And here it is delightful to sit at the window, and see how the little folks approach their table, chirping to us as they behold the familiar faces of their protectors.

If circumstances had permitted, we should have tried long ago to import from Europe some of the moth-snapper varieties of birds, of which we have but too few, and so many there; for instance the numerous families of the *Sylvia, Curruca,* and *Muscicapa;* also the grub-destroyer, King *Sturnus,* or starling, who follows every plough in the field; and of the *Passer* family, the *Fringilla domestica.* This bird is sometimes complained of as making free with cherries, and also helping itself to some wheat or barley; but no other bird will destroy as many caterpillars in the course of a day and throughout the summer as this is known to do. Professor Oken says: "As to benefit and harm which birds generally do, it is even not worth while to speak of the latter."

But if any one should attempt to import some of these birds, we would advise such to get them from the continent, perhaps from Bremen; not from England, as those from the continent will be easier acclimated. G. H. B.

[A tender and suggestive plea for the birds, to which we heartily respond. We have only to look at the condition of the trees in our large cities, where the birds find no abiding place, to become convinced of the great service they render us. Let us, then, cherish and protect these beautiful denizens of the woods.—ED.]—*Horticulturist.*

Breaking Colts.

I suppose now, in the whirl and excitement of "Rarey's System," anything not in that line on the subject of "Breaking Colts," will be deemed impertinent. But for the sake of those who have not yet adopted that system, and still have colts to break, I have a few words to say. It is admitted by all, that the horse is one of the most tractable and intelligent of all the animals that have been created for the use of man. It is also well known, and indeed follows naturally from this, that if his temper is once soured and his anger roused till he becomes hostile to man, the horse is capable of the most provoking ugliness. This being the case, much of the character of a horse evidently depends on the manner in which he is broken, and the treatment which he receives from man. My experience and observation have demonstrated to me the efficiency of the following treatment:

The colt should be broken to the halter while following the mare. But whether this has been attended to or not, the breaking should always be commenced in a spacious stable with soft floor and smooth sides. After gently handling his head, neck and shoulders for a time, proportioned to the wildness and spiritedness of his nature, a soft but strong bridle is presented to him, and after he has smelled of it sufficiently, it is slipped gently over his head and the bit inserted. In the same quiet manner a bitting harness is placed securely upon him. The bridle should be furnished with gag runners and side straps, but martingals should never be used. After very gradually drawing in his head till it is in the right place, or he begins to show signs of anger, which point should never be passed, he should be encouraged to follow you about the stable by loosening the rein a little every time he comes to you. He soon discovers that he is in the power of a superior, and yields to his will. He should be then taught to start and stop at the word, and to obey the slightest influence of the rein. This may be done by passing the finger through the bridle rein where it rests upon the shoulder, and directing his course to every part of the stable by the slightest pressure in one direction or the other. He may now be driven about the stable with lines.

During this time he should be caressed and handled kindly and fearlessly all over. He may now, if entirely submissive, be driven out doors, but should never be attached to a carriage or load until by such firm and patient tuition he has learned to submit fully and implicitly to the direction of his master. It is a good plan if convenient, to hitch him beside a steady and kind horse and drive them with a light load. He should have been so well trained in the stable, however, before this, as to know better than to scare at any trifle. This course of conduct continued will invariably procure a true and obedient disposition and amiable character and an intelligent education for the horse.

In those parts of Ohio which have been settled by Pennsylvanians, the manner of breaking colts is very different from this—a system, by the way, which has many good parts. They harness the entirely untamed colt beside the near wheel-horse in a team of four or six horses, and drive on without regard to the frantic evolutions which he will sometimes make. The strong chains, however, before and behind him, and the weight of the team and load prevent his doing any mischief. He discovers that his struggles are in vain, and a few slaps from the tongue, in a rough road, soon teach him to walk out contentedly in his place. A universal error among the Pennsylvanians here is working their colts while too young. It is not uncommon to see colts only two years old worked day after day in the team. The horse should be trained while young, but should never be worked till his form is developed and his muscles strengthened by mature age. He should always be treated with kindness and consideration. He should be regarded as an intelligent and docile animal, with great powers and capacities for being highly serviceable to man. He should be educated and instructed, not forced into subjection. His proud spirit should be curbed and directed, but not subdued. His master should be a man, not a tyrant, and should treat him not as a slave, but as a willing and obedient servant.—*Dollar Newspaper.*

☞ Whatever garden work you do let the soil alone while wet, and work it little while moist.

Meteorological Observations *kept at Schellman Hills, Carroll Co., Md., Sykesville P. O.*, MAY, 1861. (*Reported for the American Farmer.*)

DAY	THERMOMETER.				WIND.			RAIN	REMARKS.
	7 A. M.	2 P. M.	9 P. M.	D'y Mean.	7 A. M.	2 P. M.	9 P. M.	Inch's	
1	54	55	40	49⅝	W.	W.	N.W.	.....	Clear.
2	43	48	40	43⅝	W.	N.W.	N.W.	.....	Clear; ice quarter inch thick. [12 noon.
3	40	42	37	39⅞	N.W.	N.E.	N.E.	.....	Cloudy; 10 A. M. began to rain [11 A. M.: rain
4	37	48	43	42	N.E.	N.E.	S.W.	1¼	Rain; 9 A. M. hail; snow began 9½ A. M.; end
5	41	60	46	49	W.	S.E.	S.E.	.....	Frost; clear; cloudy; 8 P. M. rain.
6	50	54	56	53⅓	E.	E.	W.	2	Rain; end 8½ P. M.; from 3 P. M. until 5. P. M.
7	57	67	60	61⅓	W.	W.	W.	.....	Clear, [fog; from 5¼ P. M., until 2½ P. M.
8	63	67	50	60	S.W.	W.	W.	.....	Clear; cloudy; clear. [heavy showers.
9	55	67	55	59⅓	W.	S.W.	W.	.....	Clear.
10	57	50	50	52⅓	N.E.	N.E.	N E N	¼	Clear; shower; cloudy; rain began 12 M.; end
11	56	70	63	63	N.	W.	W.	.....	Clear: Baltimore Bird arrived. [6 P. M.
12	60	65	63	62⅝	W.	S.	W.	.....	Clear; cloudy; showery in the afternoon.
13	60	77	62	66⅓	E	S.E.	N E N	1	Cloudy; clear; gust 7¼ P. M.; end 9 P. M.; 8
14	65	77	62	68⅝	S.E.	W.	W.	.....	Fog; clear. [P. M. hail.
15	58	72	60	63	N.W.	S.	S.	.....	Clear.
16	58	68	55	60⅓	N.W.	W.	N.W.	.....	Clear.
17	54	60	51	55	N.W.	N.W.	N.W.	.....	Clear.
18	55	63	55	56⅓	N.W.	N.W.	N.E.	.....	Clear.
19	54	65	53	57	E.	S.E.	S.E.	.....	Cloudy; rain commenced 9 P. M.
20	54	55	50	53	N.E.	N E N	N.	¼	Rain end 6 P. M.
21	55	65	55	58⅓	N.	N.	N.W.	.....	Cloudy; clear.
22	57	67	56	60	N E N	N.E.	N.E.	.....	Clear: strawberries ripe.
23	53	71	57	60⅓	E.	E.	S.	.....	Clear.
24	60	76	60	65	S.	S	S.E.	.....	Clear.
25	55	77	70	67⅞	N.E.	W.	S.	¼	Rain; clear; commence to rain 3¼ A. M.; end 9
26	65	73	70	69⅞	W.	W.	S.E.	.....	Clear. [A. M.; thunder and lightning.
27	73	70	56	66⅓	W.	W.	W.	.....	Clear.
28	59	70	57	62	W.	W.	W.	.....	Clear.
29	59	67	55	60⅓	W.	W.	W.	.....	Clear.
30	54	70	57	60⅓	N.	S.	W.	.....	Clear.
31	57	76	62	65	W.	S.E.	S.E.	.....	Clear; Fire flies.

Monthly Mean, 61⅞. 6 inches Water fell.

HARRIET M. BAER.

Sandy Soils.

There is a very erroneous but strong impression on some minds, that light, loose sands are valueless for purposes of cultivation. In their natural state, it is true, they are seldom very productive; a few crops of rye or buckwheat reduces their primitive fertility, and so much manure is thenceforth requisite to reinvigorate and keep them in heart that they are either turned out to pasture, or abandoned in despair. I have had some experience in the cultivation of this species of soil, and my success has induced me to attach to them a much higher degree of importance than is usually accorded. And I am fully persuaded that even the lightest and most sterile sands, may, by proper management, and without any ruinous outlay of expense, either in time or capital, be made highly and permanently productive; in short, that our poorest plains land can be redeemed from this unjust imputation of utter worthlessness, and made to yield, not only remunerating crops, but crops equalling in abundance and richness those afforded by the most affluent soils upon which labor has ever yet been bestowed.

In the first place, in order to the successful amelioration of sandy soils, it will be necessary completely and thoroughly to cleanse them from stumps. After this is effected, let them be ploughed deeply, with a strong team, in the last of summer, turning in all the wild growth upon them to the depth of at least one foot; then harrow thoroughly and roll with as heavy a roller as you can procure. The next thing is to give the surface a good dressing of clay. This earth will generally be found in the near vicinity of the field to be clayed, either in some neighboring run or water course, or beneath the sand, for sand and clay are never far apart. The finer it is, and the more *greasy*, the better and more durable will be its action; and the more liberally it is applied, the more thorough will be the improvement consequent upon its application. The best time for applying it is immediately after ploughing, and to secure its being refined and broken up, it should be deposited in heaps, and spread evenly over the surface, to remain exposed during the winter to the action of the frost. In the spring plough again, not so deeply as before, in order not to disturb the sward, harrow, and again roll. You can now sow on rye, or plant, and the crop will come off in season to allow you an opportunity to give another dressing of clay, which in quantity should be equal to the first—say forty cords to the acre, and spread as before.

This will entirely change the texture of the soil, and you will no longer have the barrenness of sand to contend with, but a soil endued with all the essential requisites of permanent and vigorous fertility, and on which manure will act with as much celerity and energy as upon the richest loams. It may be thought that the quantity of clay recommended—eighty cords to the acre—is large, but when we reflect that some cultivators bestow this amount of stable manure, and bear in mind the very important fact that while manure is an article for which money has to be paid, the whole cost of clay is embraced in the carting, the objection arising from the quantity requisite to insure a complete and thorough improvement being large, will at once cease to retain its force. If the farmer cannot afford this, he can apply a less quantity at first, and add to it year by year; but in this case he must be contented with a much less lucrative return for his annual labors, as a very large percentage of clay is called for, in order thoroughly to improve the soil, and overcome the many and serious imperfections of sand as it naturally exists. Therefore it is much better and more in accordance with policy of enlightened economy, to give enough at first to effect the object desired, and enter at once into the profits of the business, than to occupy years with only a limited annual return.

One great reason—and indeed I regard it as the principal one—why manure never acts vigorously on light sands is, that the extreme porosity which characterises it, causes the dung to *dry*, and consequently to remain *inert*. A lump of dry manure is no better in the soil than a chip or a stone, and will produce just the same effects upon the crop. The clay gives cohesiveness to the particles, unites them by a sort of glutinous attachment and consolidation, and while it favors the absorption and retention of moisture, ensures the fermentation and ultimate decomposition of the dung. In a few years the soil will assume a fine dark appearance, resembling that of garden mould, and the various grasses will find in it a bed capable of affording expansion to their roots, and a supply of moisture and soluble food commensurate with their wants.

To every person, therefore, who is the possessor of sandy soil, I would say, *clay them at once!* No soil is so easily worked, and from no soil, when managed in this way, will labor secure to itself a more certain and rich reward.

A GLOUCESTER COUNTY FARMER.

New Jersey, June 1, 1861.—Ger. Tel.

☞ One never loses by doing a good turn.

How to Increase the Size of Fruit.

Prof. Dubreuil, in an article in the *Journal del' Academie d' Horticulture de Gand*, points out some of the principal operations whereby the size of fruits may be increased:

1. Grafting the trees on a weak species of stock—for instance, the pear on the quince.

2. Pruning so as to deprive the tree of a certain portion of its shoots. By this means, the sap which would have been absorbed by the parts cut off, goes to increase the size of fruit. Summer pruning, which has for its object the removal of a large number of shoots by dis-budding and pinching, has the same effect.

3. Let the bearing shoots be as short as possible, and in immediate connection with the main branches. Fruit growing on the stem is always larger than that situated at the extremities of long, slender branches.

4. Thinning out the fruit when too numerous.

5. Shortening the principal branches, at the winter pruning; and checking, in the summer, the vigorous shoots.

6. Supporting the fruits so that their weight may not become a strain upon the foot stalk.

7. Moderating the amount of evaporation from the fruit. Fruits covered by leaves are larger than those on the same tree not shaded. It is necessary, however, in order that shading may not affect the quality of the fruit, to expose it when full grown to the direct action of the sun. To diminished evaporation must be attributed the considerable increase of size which always takes place in fruit introduced into bottles soon after it is set. The mouth of the bottle being closed after the portion of the branch from the dry action of the air, and is constantly surrounded with a moist, warm atmosphere, which keeps the epidermis pliable, and stimulates the growth of the tissues.

8. Moistening the fruit with a solution of sulphate of iron (copperas.) One of Prof. D.'s pupils, by moistening an Easter Beurre pear, from the time it was fairly set, once a fortnight, obtained a fruit so large that it could scarcely be recognized.

9. Ringing the shoot or branch immediately below the flowers. This should be done when the flowers are opening; the longer it is delayed after this period, the less is the effect produced. The incision should penetrate to the wood, and the ring of bark removed should have a width equal to half the diameter of the shoot. The width, however, should not exceed one-fifth of an inch, otherwise the wood will not close up.

10. Inserting on vigorous trees fruit buds,

with a portion of wood attached. A tree which in consequence of excessive vigor has never produced blossom buds, may by this means be made to produce fruit of large size, from the abundant supply of sap which the inserted blossom buds will receive. But it will be necessary to pinch the shoots of the tree in summer, which would otherwise absorb the larger portion of sap, to the injury of the fruit.

Matched Horses.

We well recollect the reply of an intelligent farmer, when asked if his horses were well matched: "Yes," said he, "they are matched first rate. One of them is willing to do all the work, and the other is willing he should." This is not what would be considered well matched, especially by a person who has a proper regard for his own comfort and safety, and the good of his animals, yet there are a great many pairs of horses worked together which are matched about in this same way. It is not an easy matter to find a pair of horses well—not to say perfectly—matched in every respect; and we regard the thing as impossible, unless they are of the same blood on both sides. In market it is essential to a good price that horses offered in pairs should be of equal size, similarity of build, and colored alike to a shade. These qualities are of importance as affecting the market value of horses offered for sale as matched pairs, but there are, in our opinion, other considerations of vastly more importance as affecting the real value of matched horses. They should have the same temperament; that is, one should not be quick and nervous, always ready to start at the first signal, and the other slow and phlegmatic, never ready to move until started by the whip; and a pair of horses perfectly matched in size and color, but of different actions, are ill matched. Therefore a span of well matched horses should have the same spirit, action, temperament, gait and disposition, as well as color, form and size.

Then, again, matched horses should be gaited alike when they walk or trot. Many horses that trot well together cannot walk together, because one may naturally walk fast and the other slow, and the fast walker takes more than his share of the load, while the other is greatly wearied to keep pace with his mate, and ambition and courage never can make up for a naturally slow walking gait; and altogether a pair of horses may move along together when upon a walk because the slow walker has the disposition to keep up with his mate, yet he is worried in performing what his mate does with the most perfect ease. In matching, or selecting a pair of matched horses, there are many things to be taken into account, besides color, size, &c.

As we have said above, it is a difficult thing to get a pair of horses well matched unless they are the same blood on both sides. A spirited, sprightly, ambitious, nervous Morgan never will work well with a dead mettled dunghill.—Thoroughbreds of the same stock have a similarity of temperament, disposition and gait, if not of size and color; and when they are found to match in color and size, the same discrepancies do not exist between them as between dunghills. Take the different families of Morgans, and if kept pure, they will be found to possess the same general leading characteristics, and when got together make valuable pairs. In this view of the subject of horse raising, who can doubt that it is wisest, cheapest and best to bestow great care upon the stock used for breeders? —*American Stock Journal.*

New Mode of Subsoiling.

I beg to submit to you what has occurred to me as a very simple mode of subsoiling, or deep plowing, that can be effected by the easiest method possible. Let the plow be driven on the same furrow two or three times, or as often as necessary, in order that you may be able to carry your plowing to any depth you think desirable. In doing this an improved mould-board will be required for turning the first furrow. When the plow has turned the first soil, and is driven again in the same track, a larger mould-board will be necessary, and one of a peculiar construction to clear away the soil of the first furrow, and facilitate the further passage of the plow. I am taking out a patent for a new mould board of a description to effect this purpose, which I conceive by very simple means will produce a very desirable result. A light two horse plow will always be sufficient for this sort of work, and will enable you, certainly in less time, to plow deeper than with the heavier subsoil plow we are accustomed to, worked by four horses. This mode of plowing, though very obvious, may still be novel and may be beneficial to agricultural public, which is my excuse for intruding on your space.—G. J. Crouch. *Exter.* (The *first* plow wants a wider mould-board; the second, if any, a narrower one.)—*London Agricultural Gazette.*

☞The chopping or grinding of grain to be fed to stock, operates as a saving of at least twenty-five per cent.

The American Farmer.

Baltimore, July 1, 1861.

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A New Volume.

The war upon business has anticipated the disastrous strife before which every monument of the Country's glory, or of the prosperity of the people must crumble to the dust. Many of our most valued Exchanges have ceased to exist, and others come to us shorn of their fair proportions, or with other evidences of suffering. For ourselves, our readers will see, that our advertising sheet which was so fair an index of the prosperous trade of this city with the South, indicates as clearly now its prostration, and that from the small amount left us we must, in prudence, encroach in a measure on the usual number of pages allotted to reading matter. They will, we are sure, bear with us in this for the present. The difference we expect to make up to them in future when more prosperous days will justify it. For the rest, sorely as we feel the pressure of the times, and sadly as the calamities of the people weigh upon our spirit, we shall toil on still in the hope of "a good time coming."

We do not believe, it cannot be, that that good Providence who has nourished and brought up as children this great people, with a thousand daily manifestations of his favour and love, and has named them after His name, means now, in this hour of their madness, to leave them to themselves. All else has failed us. The great, the wise, the prudent, Presidents, Judges, Counsellors, all have proved powerless in this crisis of the country's fate. But ere this thirty millions of Christians shall become hopelessly involved in a strife in which anger, malice, hatred and all evil passions shall have sway, and before which love, joy, peace and every Christian grace and virtue shall shrink in dismay, we believe that the Christian's King, the Prince of Peace, will yet, for the honor of his own most holy name, "Raise up His power, and come among us, and with great might succour us."—"Master, carest thou not that we perish?"

An old Horse—What will he do with it?

A correspondent wants to know what he shall do with an old horse. "What will he do with it, that is the question." "Not a very bad horse either," he says, but "a slow walker, has a swelled leg, and is getting old." Five dollars as the auctioneer would say, is all he has offered for this fine large horse! He would be worth more than this to sell his hide, and convert carcass and bones into manure, but it would not be kind to kill old sorrel and devote him to so ignominious a purpose. He is altogether as decent and clean an animal as an ox, yet he cannot be sold for beef this side of Paris, while an ox of his weight would be worth forty or fifty dollars in our market. All we can do is to present the matter to our readers, not "to adorn a tale" for old sorrel is not an ornamental horse, but "to point a moral."

We say shun an old horse. Sell him before he gets old to some poor fellow who does not take the *American Farmer*, and let him grow old on his hands. In our own experience, we have purchased mules at two years old, and after working them six to eight years sold them generally for about their first cost. But what is better than this, have less horses and more oxen. Get in the way of using oxen for many more purposes than at present. When well trained they are much better adapted than is generally

supposed to all the various purposes of farm-labor. They are cheaper in first cost, more economically fed, and worth much more when past use.

Again, good sized cows may be made to do much work if trained to it. Our agricultural friend Mr. Calvert when he kept a large herd of cows was we know in the habit of using cows as oxen and was well pleased with their work. In a late No. of the Country Gentleman, Mr. Lewis Baily of Fairfax Co. Va. says:

"For the last ten years I have used my cows for sawing all my fire wood, cutting hay, straw and stalks, and considerable thrashing. I keep two or three pairs of cows broke to the yoke, which are always ready to help along when we want more team. They haul out most of my manure and do most of my carting. With some additional food when at work, I believe they give as much milk as when not worked."

Let every calf, male or female, be haltered and handled from the beginning, and they will be as docile as dogs, and save all trouble in breaking to the yoke.

Value of Cows.

If two cows were put up at public sale one of which would give six quarts of milk daily for ten months, and the other twelve on the same food, the former would find probably many more purchasers at $20 than the latter at $50. Let us see whether such an estimate of value is correct. Suppose the cost of feeding to be 15 cents per day for 365 days, the cost of keeping each cow will be $54 75 a year. Estimate the milk at 4 cents a quart for 300 days, and we have from the six quart cow $72 00 in value, from the other $144 00 —from the former $17 25 above the cost of feeding, from the latter $89 25. Now if one of our boy readers will cipher out the following sum he will find the answer readily.

If a cow giving $17 25 nett profit be worth $20 00, what will one giving $89 25 be worth.

$17 25 : $20 00 :: $89 25—$103 47, making the twelve quart cow worth $103 47.

Or if she be considered worth but $50 00, then the other would be worth but $9 66 as appears from the following proportion.

$89 25 : $50 00 :: $17 25—$9 66.

In other words while the twelve quart cow gives only twice the quantity of milk, she is worth five times as much money estimating her with reference solely to milk. The presumption however is that the cow giving the smaller quantity would be worth much more for beef at the end of the ten months, and this is to be considered in the estimate of money value. It may be too that the smaller quantity of milk will yield a larger proportion of butter, and if so, this too, where butter is an object, is to be considered. But after all, it will be found that in nine cases out of ten we place too low an estimate on the good cow as compared with the poor one.

Fine Strawberries.

We are indebted to Mr. John Saul, florist and Nurseryman at Washington for some fine specimens of several varieties of Strawberries. Unluckily when received they were not in fair condition to be tasted properly. We give Mr. Saul's description of the four sorts sent, that amateurs and others who want fine varieties may avail themselves of his assistance in procuring. They are all foreign sorts.

Rivers' Seedling Eliza.—This superb fruit is of the very largest size, color a bright crimson, flavor exquisite and productive, I have never known it burn in our hottest weather—nor has it at any time without the slightest protection been injured by severe cold.—Every lover of large strawberries should possess it,—and no amateur who cultivates strawberries should be without it.

Jucunda.—A comparatively new variety imported by me from France two or three years since,—in size it is nearly or quite equal to the foregoing.—Bright clear color, delicious flavor, and productive. So far this variety gives promise of great excellence, and will ere long be one of our popular sorts.—I can with much confidence recommend it.

Comte de Flandre.—In size this is not fully up to the two preceding varieties, yet it is a fair size fruit, which many would call large—color a deep crimson, flavor first rate,—an abundant cropper —very hardy withstanding sun or cold. This variety can be strongly recommended to market gardeners for its very hardy constitution, productiveness, uniform good size, bright color and good flavor.

La Reine.—Fruit of largest size, bright crimson color, shape nearly globular, fine flavor.—Like the others it has a hardy good constitution, proof alike against our burning sun or severest cold—It can be recommended to the market gardener or amateur.

It has often surprised me that the market gardeners who grow strawberries largely for the Baltimore markets and ship them in quantities to our own (Washington,) should not cultivate these large superior varieties, rather than the poor miserable scarlet sorts almost universally grown;

they will find themselves amply repaid in the enhanced price which such fruit would bring—these small scarlets retailing in our markets at six or eight cents per quart, whilst the larger varieties bring readily twenty-five cents,—and at scarce times, and when they first come in, double that amount.

☞ We are indebted to Wm. Bright, Esq., of the Logan Nursery, Philadelphia, for a copy of the second edition of his valuable and popular little treatise on Grape Culture.

Foot Rot in Sheep.

As warm weather approaches, the inexperienced owner of sheep may be surprised some morning to see numbers of his flock limping about the field; an expert will at once recognize symptoms of the foot rot. An examination of the foot of a sheep so affected will show the presence of disease in the skin and flesh in the cleft of the hoof. In the first stages, there is inflammation in the hinder part of the cleft, where the naked skin appears. Ulceration follows, and extends to the whole inner part of the foot, until in time the horny covering is separated from the flesh, and hangs by the skin at the upper part. A most offensive discharge issues from the sore, attracting the fly, which deposits eggs in the diseased part, and the whole becomes a living mass of corruption. The rot may be confined to one foot, or it may affect all at the same time. Unless cured, it will destroy the sheep, which must suffer excruciating pain as the disease progresses. In the latter stages, when the foot is completely disorganized, the poor animal is often compelled to hobble about upon its knees; and in many instances, the discharge from the feet has saturated the wool, attracting insects which having burrowed into the skin added to the torments of the sufferer.

Numerous experiments have shown the disease to be highly contagious. A healthy sheep inoculated in the foot with virus from the ulcer of a diseased animal will be sure to take the infection. It has been spread through large flocks by the introduction of a single infected animal; and it is believed by many experienced flock masters, that the poison is retained for a long time in pastures where such sheep are fed.

It can be cured. Mr. Randall, in his "Sheep Husbandry," gives an interesting account of his successful treatment of a flock numbering about eight hundred head, that took the rot from a few imported animals. His method was substantially as follows: Choose a time, if possible, immediately after a rain, when the hoofs are softened by the wet grass. Drive them into an enclosure thickly littered with straw, to keep the feet clean. Take each suspected sheep, lay it partly on its back and rump between the legs of the operator who may be seated in a chair. If the hoofs are too long, shorten them with toe-nippers. Remove all filth from the toes by drawing a wet cloth through the cleft.

If the erosion and ulceration are confined to the cuticle and flesh in the cleft *above* the walls of the hoof, no paring is necessary. But if the ulceration is established between the hook and the fleshy sole, the ulcerated parts *must be entirely denuded of their horney covering*, by paring with a sharp knife. In an advanced stage of the disease it may be necessary to remove the entire hoof, as all loose horn should be cut away. If maggots appear, pour on a little spirits of turpentine and they will leave. Then cleanse the foot with a wash made of one pound of chloride of lime to one gallon of water; or with water alone, heated to near scalding. If there be "proud flesh," remove it with scissors, or by burning with hot iron. If the disease is in the first or second stage, and no abscesses are formed in the flesh of the sole, a thorough application of a saturated solution of blue vitriol will be sufficient. One pound of vitriol will suffice for ten or fifteen sheep. Put the solution in a tub, keep it as hot as can be borne by the hand, and when the hoof is pared, hold the sheep so that he will stand in the tub five minutes. Keep the solution hot by adding fresh supplies. If abscesses are already formed, go over the diseased surface with muriatic acid, which may be conveniently applied with a swab of tow; after which apply the vitriol solution. Then coat the wounded surface with tar, to keep out dirt and flies, examine it every three or four days, and repeat the treatment if needed and a cure may be looked for with reasonable certainty.—*American Agriculturist.*

HORSE TAMING IN OLD TIMES.—A horse-breaker in "the good old times of Queen Bess," gives the following directions:

"If your horse does not stand still; or hesitates, then al rate with a terrible voyce; and beat him yourself with a good stick upon the head between his ears, and then stick him in the spurring place iii or iiii times together, with one legge after another, as fast as your legges might walk; your legges must go like two bouncing beetles."—We prefer Rarey's method.—ED. FARMER.]

HOUSEKEEPERS' COLUMN.

[Contributed by a Lady.]

To Dress Cucumbers.—Take three good sized cucumbers, pare them, put them in cool water for an hour, take them out and cut them in the usual way; sprinkle salt upon them and let them be so until an hour before dinner; drain off the salt liquor; put them into a vegetable dish. Take a pint of sour cream, (*not too old,*) a good tablespoonfull of cider vinegar, a piece of butter the size of a hickory nut; put them on the fire and let it come to a boil; pour it over the cucumbers while hot; set them by in a cool place until dinner. We think it is the only way to eat them. Try it.

Nutritive Properties of Peas and Beans.

In our last we made some remarks upon this subject, bringing proofs from "Holy writ" of the position taken of the value of this kind of food for supporting the animal system.

We propose now to bring forward facts further corroborative of the value of these products for animal food. We shall make an abstract of observations made and published in England, several years ago, by Dr. Buckland:

"The seeds of leguminous plants," says he, "especially peas and beans, are loaded with the constituents of muscle, and bone ready prepared to form and maintain the muscular fibre of the body of animals. Hence, the rapid restoration of the shrunk muscle of the exhausted post horse by a good feed of oats and beans, (the English horse bean is here meant.) Hence the sturdy growth of the Scotch children on oat cake and porridge, and of broth made of the meal of parched or kiln dried peas." On this he avers a man can live and do a good days work on 1½ penny a day; while the children of the rich, on the finest wheat flour, and on sago and rice, butter and sugar, may appear fat and sleek, but would often die, as they sometimes do, on such nonnutritious food were it not for the mixture of milk and eggs they eat in their cake and puddings.

He further remarks that an old laborer of Axbridge complained to his master, Mr. Symonds, that laborers feeding there on potatoes could not do so good a days work now as when he was young and fed on peas. "Peas, sir," said he, "stick to the ribs." In this he uttered the very truths of organic chemistry.

In beans we have vegetable "caseine," or the peculiar element of cheese. What is more grateful to a man when fatigued by labor or a long walk? Sepoys, on long voyages, live exclusively on peas. The working and healthy man and beast want muscle and not fat. Fat incumbers and impedes activity, and every excess of it is disease. We seldom see a fat soldier, except among the sergeants, who sometimes eat and drink too much.

We have thus abridged some of Dr. Buckland's remarks for the benefit of our readers, some of whom are beginning to look upon beans and peas especially bean porridge and pea porridge, as very unfashionable and vulgar food. Flour—flour, superfine flour must be the bread, morning, noon and night, and thus foolishly throw away the most nutritious food—food that every muscle and every bone in our bodies is begging for, and supply them with that which satisfieth them not at all, for fashion's sake. We will not say that the man who invented the modern "bolt," or sifting apparatus, by which the most nutritive part of the wheat is separated and cast one side, while the "superfine" part is saved and made the staple food for the people, ought to have been hung—but we do say that he was far from being a benefactor to his race. He pandered to a sickly and suicidal sentiment that *fine* people must eat *fine* flour. He helped to bring about a degeneracy in the physical strength and powers of the people, which is in strange contrast with the enduring and stalwart frames of our fathers, and which can only be reproduced by a return to the more substantial diet upon which they fed.—*Maine Farmer.*

Succession Crops.

These are very common with the gardener, but are rarely attempted by the farmer. In well managed vegetable gardens we frequently see one, two, three, and sometimes even four crops taken from the same piece of land in a single season.

Thus the gardener gets more money from eight or ten acres than many farmers from a hundred or more. He will have lettuce and radishes succeeded by cabbage, planting them in alternate rows, and the cabbage followed by carrots or some other root crop. He will have potatoes followed by late cabbage or corn, peas followed by turnips, or some other root crop. But the routine farmer is very well satisfied if he get one fair crop in a season from his land.

We have no doubt it is entirely practicable for our farmers to get two crops from most of their cultivated field, and that this course would pay a much larger profit than the present system. Pastures of course can only yield grass. But the meadows, if only made rich enough, will just as

readily yield two crops as one. There is hardly an acre of fair meadow-land cutting now from one to two tons of hay to the acre, that cannot be brought up by top-dressings to produce three tons of hay at the first cutting, and one ton at the second cutting, or its equivalent in good, rich pasturage.

The difference in the annual profit of such an acre is worth looking at. The acre now produces two tons of hay, worth above the cost of production say twenty dollars. The same acre, if it be made to produce four tons, gives forty dollars, with only the additional cost of manure, and the second cutting. It costs not far from three dollars a ton to cut grass with a scythe and put it in the barn. With a mowing machine and all the improved tools of haying, hay can be put in the barn, under favorable circumstances, for two dollars and less per ton.

With a convenient deposit of peat or muck, we think a good compost—the equivalent of barn-yard manure, can be made and spread for one dollar a cord. Suppose it takes ten cords annually to produce the four tons of hay. We should have, then, the extra yield of two tons, secured by an outlay of thirteen dollars at the most, and a clear profit of seven dollars upon each acre so treated. This, upon fifty acres of mowing would make a difference of one hundred tons in the yield of hay, and of $350 in the clear profit of the farm. If this hay were all fed out upon the farm, it would furnish manure enough to keep the farm up to this high standard of productiveness.

If an early variety of potatoes are planted April 1st, like the Carpenter's or Wendell's seedling, they can be all dug in the month of July. After the last hoeing, or about the middle of June, we may plant a variety of succession crops, according to our wants, without interfering with the potatoes. Beans will mature perfectly. Cabbage plants may be set out, or carrots may be sown.

We raised carrots in this way last season, at the rate of over a thousand bushels to the acre. Corn for fodder may also be raised in this way very cheaply. Open a furrow with the plow, sow the seed, and cover with the plow, manuring with super-phosphate or some concentrated fertilizer in the drill. The potatoes will have attained their growth before the corn is high enough to shade them. The corn can be cut and cured the first or second week in September, and, under favorable circumstances, we can get at least four tons of dry fodder, worth quite as much as good English hay.

This succession crop is of great advantage, as it secures the farmer completely against short pasture in dry seasons. The corn will be large enough to furnish cuttings by the first of August, and can be fed out green if the season makes it necessary. We think that forty dollars is a moderate estimate of the value of such fodder. It will cost to produce it, say ten dollars' worth of manure, and as much more for labor. This would make a profit of twenty dollars extra upon the succession crop. If the succession crop were carrots, the labor would be increased, and the crop in rich soil would be worth more.

Even with corn we may have a valuable succession crop. At the last hoeing, in July, sow turnips, working the seed in with the cultivator, if it be used, and with the hoe, and using about three hundred pounds of super-phosphate of lime to the acre, unless the land has had high manuring in the spring. In the shade of the corn, the seed will come up and the young plants get well established.

The corn will be ready to cut up by the roots about the middle of September, when the turnips will have the ground for about two months, or until there is danger of their being frozen in. From two to four hundred bushels of turnips to the acre may be gathered in this way at very small cost. We have raised two hundred on land that yielded sixty bushels of corn to the acre, without extra manure.

We might specify other succession crops, but if the farmer once gets in the way of raising them, he will readily learn the best succession for his peculiar circumstances. Those who are near a good market for vegetables, will find cabbages and winter squashes a good succession for potatoes. Some of our shore farmers, near the seacoast, raise onions for a first crop and follow with carrots. The onions are sown early, and the carrots in alternate drills, about the middle of June. The onions come off in August, and the carrots have the ground.

It will be seen that by these succession crops the farmer gets double the profits, nearly, from the same surface of land. It would seem at first glance that it required a much larger capital to carry out this plan. But this difference is rather apparent than real. The capital is put in a different place. The routine farmer has the most of his invested in land, where it does not pay him two per cent. interest. The other invests his in only half the quantity of land, and the rest in manure, tools, and labor, with a view to make his real estate productive. If an acre cost him forty dollars, he lays out forty more, and gets ten per cent. on the eighty, instead of laying out ten

grudgingly, and getting four per cent. on the fifty. To make succession crops profitable, we must have more manure. The soil that is capable of producing only forty bushels of corn to the acre ought not to be taxed with a second crop, unless it have help. With plenty of manure we may take two crops annually, and get a much larger interest on our capital, while we keep the farm constantly improving. When all crops are likely to rule high, it is a favorable time to invest largely in manure, and make the soil yield all it will.—*The Homestead.*

Descent for Drains.

John Ewart, an English agricultural engineer, in a paper published in the Farmer's Magazine, makes the following remarks:

Although a very trifling fall will give motion to water, yet, whenever it can be avoided, no drain should have a less descent than 10 feet per mile, 1¼ inch to a statute chain of 66 feet in length. A greater fall, however, than 8 inches to a chain in length is not to be desired. Whenever the descent of ground in which a main drain has to be carried exceeds 10 or 12 inches to a chain, it will be preferable to lay out the drain in lengths or reaches, at uniform falls of less than 8 inches to a chain, and connect such lengths by inclined planes—letting down the water from the lower end of the higher length to the higher end of the lower length—than to maintain one uniform descent with so great a fall.

When the ground is flat, and the subsoil of a uniform nature, it matters not in what direction the drains run, provided the main or receiving drain be along the lowest level of the ground to be drained. When want of sufficient fall may necessitate the bottom of a main drain at its outfall being on a level or nearly so, with the bed of an open watercourse into which such main drain is discharged, it will be advisable to have, here and there, settlers of brick work in the course of the drain, with their bottoms below the bottom of the drain, and carried up to the surface, where, having lids, the drain may be examined at different points in its course, and any solid matter that may have entered the drain removed. One of such settlers should be near the outfall of the drain.

On sloping ground, the direction of the collecting drains should always be in the direction of the slope, and not across it; as by the formermentioned direction every stratum in the subsoil to the depth of the drain is certain to be intersected by which the water from the feeders in the subsoil will be intercepted and carried off before coming to the surface; whereas, by the lattermentioned direction, the drains will be as likely to miss as to intercept the water-feeders in the subsoil, and will, therefore, be uncertain in efficiency. It very seldom occurs, however, that ground slopes entirely in one direction. When the surface of the ground slopes in two directions, the most proper direction in which the drains should be laid off is in an oblique direction between the two declivities, nearer of course to that of the greater, by which the direction of the water at its discharge into the main drains will be inclined to the direction of the currents thereof, and so offer the least interruption to its free discharge.

Planting out Celery.

We have expressed ourself repeatedly in favor of the early planting out of celery. From our experience and observation, we think that much of the poor celery is owing to want of time in coming to perfection. We have set out the plants at three different periods in July—say the first, second, and third weeks, and we have rarely had celery worth keeping by the last planting. The true period for transplanting, in our judgment, is the last week in June, and the first week in July. It is a good plan to set the plants between every other two rows of early-planted corn—the latter affording just the amount of shade desired.

It is not necessary to plant in deep trenches, except for the purpose of obtaining the means of shading the young plants in the old-fashioned way with boards. We have no objection to the latter mode; indeed we are not sure that, if the subsoil be well loosened and manured, it is not the most certain way of obtaining a good crop. Where no trenches are prepared, the rows will be required to be farther apart to admit of higher earthing up. Our own plan is to plant on a level surface, generally among the corn; and thus far, we have had satisfactory results.

Under any circumstances, the young plants should be shaded from ten to four o'clock, and watered twice a day. The ground should be in the best condition, and the plants should have one or two applications per week of strong manure water for the first three weeks. Afterward a dressing of cow manure, or some rich, well-rotted manure.

We prefer hilling up when the plants reach the proper size, and continued hilling as the plant progresses, instead of waiting until the celery is nearly or quite done growing before performing this work, as some do. This hilling up is a rather nice business if properly done,

and should, on each occasion be finished with the hands, due care being always taken that the "leader" should not be buried.

While our crops of celery have varied in quantity and quality, we have not failed in a satisfactory yield for fourteen years.—*Germantown Telegraph.*

The Cashmere Goat.

S. S. Williams, of Licking county, Ohio, gives the following history of the Cashmere Goat in that State, in the "Ohio Farmer."

The first attempt at an introduction into Ohio, was made by the Hon. J. P. Brown, late Consul General to Constantinople, formerly a citizen of Ross county, Ohio.

Mr. Brown shipped, in 1857, to a relative in Bainbridge, Ross county, a fine lot of well selected animals, twelve of which reached Ohio in safety. We would here remark, that great credit is due Gen. Brown for the interest he manifested in the introduction of this valuable animal into his own State. As evidence of his determination to benefit Ohio in particular, I would say, that he at first limited his relative to the State, allowing him to sell no animal out of it. Upon being informed, however, by his friend that the Ohio people *did not want them*—that he had for a considerable length of time had them advertised *for sale*, in a widely circulated agricultural paper: he taking the advice of his friend, sold in the spring of 1859, to B. K. Tully, of Kentucky, 21 head, viz. 10 imported animals, 5 yearlings, and 6 kids. It will be seen that they had bred twice while in Ross county. The testimony of Mr. Brown, of Bainbridge, is that they cared for neither heat nor storm. None died in Ross county, but one imported animal, which was sick when it reached Ohio. After making this sale, Mr. Brown was left with 5 head, old and young; of this number, he has since sold four to another gentleman in Kentucky. The other (a buck) is now owned by Messrs. Smith & Lytle, of this county. The fact, that of the 26 goats sold by Mr. Brown, *only one animal* was bought by a citizen of Ohio, does not speak as well for us as we should like. Smith & Lytle are breeding the buck above referred to, to common goats.

The next motion toward an introduction of the animal, was made by myself. While in Tennessee, in January, 1859, I met with gentlemen engaged in breeding Cashmere goats; being struck with their beauty, I at once sought information in regard to their value. After satisfying myself that the introduction of the animal would add to the interest of the State, I at once determined to try the enterprise in Ohio. At this time I had not heard of Mr. Brown's attempt.

In November, of the same year, I brought to this State 4 grade bucks, viz. 3 three-quarter bloods, and 1 one-half blood. These bucks were bred with success to common ewe goats, and last year, 1860, a fine lot of kids was raised from them.

In December, 1859, Hon. William H. Stiles, of Georgia, landed 8 head, viz. 2 bucks and 6 ewes, at Savannah, shortly after which I bought of him 1 buck and 5 ewes. A part of his flock you saw at the State Fair last fall. These goats are all doing well. I raised from them last year, 3 fine kids, viz. 2 bucks and 1 ewe.

I also brought from Tennessee last fall, 6 one-half bloods; 6 three-fourth bloods; 3 seven-eighth bloods, and 1 fifteen-sixteenth blood females, two of which number (seven-eighth blood) I sold; the balance I am breeding to my imported buck. I also have, with kids, between twenty and thirty head of common goats, bred to a young through-bred buck. The animals all look well, I could not wish them to look better. Of their habits, hardiness, longevity, the ease with which they are reared, you have already been informed; I will simply say that they are fattest during the fall and early part of winter. The bucks invariably get poor in the spring.

After being imported, and having but a short time to rest in Georgia, before he was shipped to me, my imported buck "John Bell," weighed upon his arrival here 145 lbs.; when you saw him at Dayton he weighed 160 lbs.; about Christmas he weighed nearly 200 lbs.; and now, though quite poor, he weighs 170 lbs.

Early last year, Mr. J. K. Wing, of Trumbull county, received from Mr. Peters, 4 grade animals, viz. 1 fifteen-sixteenths and 1 seven-eighths buck, (very fine animals,) and 2 small three-fourths blood ewes. These animals you saw with me at the Fair, last fall, where I exhibited them for Mr. Wing. If other importations have been made into Ohio I have not heard of them.

☞Specimens of a new paper for printing, invented in Austria, and made entirely from maize straw, have reached Paris. The paper differs little, except in color, from the ordinary paper in use for the daily journals. It is a shade more yellow, that is all; but the ink turns black, and the printing is perfectly legible. Some of the specimens are as fine as if intended for ladies' correspondence, and support a high degree of glazing. This paper, colored pink or lilac, cannot be distinguished from the very finest qualities of writing paper now in use. The advantage in cheapness is more than one-half.—*Ex.*

Good Bedding for Stock.

A great deal has been said within the past twenty years about stabling cattle on floors made of scantling or poles placed so that the droppings and wet would pass through and fall into cellars or bays from whence it could readily be carted. It has been argued that the animals were kept more dry and healthy, and that they did not need straw or litter for bedding. Experience is the true test in cases of such kinds of practice, and a little common sense observation dissipates the theoretical notions of the inexperienced. In cases where we have known these kinds of floors to be put down, they have been taken up and good firm plank flooring put down in their place.

Again, in the summer let an animal be turned out, and it will pick out a dry, sandy knoll on which to lie down. In winter turn a lot of cattle into a yard with sheds, some of which have straw, and others that have no straw spread on the ground, and it will be found that the strongest animals invariably take possession of the best littered sheds and make for themselves a lair as soft and comfortable as the material will afford. That animals in stables cannot have the same choice is no reason that they do not prefer it. In a late communication to the *Country Gentleman*, Levi Bartlett recurs to this subject, and quotes the following two authorities:

"In a late number of the Journal of the Royal Agricultural Society, England, is published a paper on the 'Proper Offices of Straw on a Farm,' by Henry Evershed, from which I make a short extract. He says, 'I shall now turn to a more common state of things, where straw is not in excess of the ordinary requirements of the farm; first examining what appears to be the most important, because the most indispensable of the uses of straw, viz., as litter. All the larger animals require litter of some sort. A warm, dry and soft bed is quite indispensable for their comfort. As an expedient for saving straw, I once put twelve three-year old oxen on boards to fatten, and found it a very cruel experiment. The animals were always in a state of distress; one of them refused to lie down, and remained standing four days, until the muscles of his thigh swelled from the unnatural tension. A comfortable layer of straw soon set all right again. * * * In fact, the best food and unremitting attention will not compensate for the lack of a comfortable bed."

"Asa G. Sheldon, Esq., of Massachusetts, a well known farmer, and the owner and worker of great numbers of oxen within the past forty years, stated at an evening discussion, (State House, Boston,) that he would rather his oxen should travel twenty miles daily, and then have a good bed of litter or straw to sleep upon, than travel but fifteen miles per day, and at night be obliged to lie upon the naked floor of a hovel."

Grazing Cattle.

As the grasses constitute the natural and appropriate food of cattle, and is that upon which they thrive most rapidly, in order that they may derive the greatest advantage and highest enjoyment from it during the season, they should be turned into the pastures as early in the spring as the condition of vegetation will permit, which is just as soon as the grass has attained such growth as to enable the animal to crop it readily. I have known cattle lose more flesh by being confined to the barn-yard in the month of April, than they had done during the entire winter. And this loss of flesh sustained by them, was not compensated for to the owner by the increased growth of the grass.

When stock are turned upon the pastures, whilst the grass is yet young, it springs up so rapidly after being cropped, that they not only have their food during most of the summer, in the fresh, sweet and nutritious condition of early spring, but the land actually yields a larger amount than it would otherwise do; for if everything is excluded from the pastures until the grass gets a "good start," that is, until it has attained considerable size and age, it not only grows up much more slowly after being eaten off, but is less acceptable to the animals. It is well known to every observant farmer that those spots where the grass is tallest and most luxuriant, are just those rejected by the discriminating palate of the fastidious quadruped, while the short and less flourishing are re-cropped daily with unalloyed appetite.

It is the practice of some successful graziers to winter their stock in the fields upon which they are to be grazed the next summer, never removing them even for a day, in order to let the grass get ahead. This method is practicable when the farmer has a large quantity of close and heavy "old sod."

I am well satisfied that the same area of pasture land will make more beef in a season, by turning the cattle upon it early in the spring, than by the opposite method.

When cattle are turned to grass they should at once be given the entire range of pastures intended for them. To be changing them from field to field during the summer, induces a discontented and unquiet disposition, in the highest degree

unfavorable to the regular and rapid improvement in their condition. So essential is it to the fattening process, that the animal should be permitted to enjoy, in undisturbed repose, the calm pleasures of rumination; the farmer should be careful, as far as practicable, to remove every cause tending to disturb and agitate his herd. Colts and idle horses should therefore never be allowed to run with the fattening cattle.

During the summer, stock should be salted regularly and abundantly. At this season they seem to require it more than at any other period of the year. It would, perhaps, be the best plan to keep a supply constantly by them, but, as this is rarely practicable, it ought to be given to them frequently and at regular intervals. It is my practice to salt each alternate day in the summer. Under this practice, cattle consume but a small quantity at a time, and it has the effect of promoting their quiet and contentment. The time of the day at which cattle are salted, is I think, a matter of little consequence, although some persons attach importance to it. But as cattle are very regular and methodical in their habits while grazing, passing over the entire enclosure allotted to them, in nearly the same order every day, it is well to salt always at the same place, and so arrange the time as to reach the spot simultaneously with the cattle in the progress of their regular rounds.

I much prefer an abundant supply of running water in the pastures, yet those farmers who have to depend upon ponds, insist that cattle do just as well when compelled to allay their thirst from a green, slimy and filthy pool, as when drinking from the coolest spring or most sparkling brook. This comfortable faith in the virtues of stagnant water, I have no disposition to unsettle.

There is nothing more grateful to the panting herd on a hot and sultry day in July, than the cool and refreshing shade thrown over the parched earth, by the wide spread and leaf covered branches of a noble oak or beautiful ash; no humane farmer, therefore, who entertains a just regard for the comfort of his horned dependants, or who recognizes the golden rule of "doing unto cattle as you would have them do unto you," will fail to preserve an ample supply of shade trees in his pasture grounds. Anything that adds to the comfort, likewise promotes the thrift of the animals, so that the pecuniary interests of the farmer combine with the voice of hamanity and good taste in demanding the preservation of shade trees.

The number of cattle that can be profitably grazed upon a given area of land depends upon such a variety of circumstances, that it is impossible to give any precise and definite rule in reference to that subject. The farmer, however, ought to be careful not to overstock his lands, if he wishes to enjoy the pleasure of seeing his cattle in a condition creditable to his care and skill as a grazier. Pastures of such long standing as to have formed a close, compact and heavy sod, of the indigenous grasses, will fatten a larger number of cattle than the same extent of similar lands recently laid down in grass. The size of the cattle is likewise another consideration to be taken into the account; as the same fields will pasture well a greater number of small cattle than of large ones.

The excellence of "old sod" for the purpose of grazing, is due rather, I am inclined to think, to the greater quantity and better condition of the grass it furnishes, than to any intrinsic superiority in its nutritive qualities over similar grasses recently set. Upon rich land, which has long remained undisturbed by the plow, the artificial will, in a great measure, have given place to the natural grasses, and these rarely attain such size and rankness of growth as to render them distasteful to the cattle. Again, owing to the number and vigor of the roots of these indigenous grasses, they are able daily to furnish a fresh supply of food, however closely they may be grazed.

The relative fattening qualities of different pastures, however, seem to depend more upon the character of the soil upon which they grow, than upon the kind of grasses composing them or their age. In this county, the best grazing farms are composed of what is popularly denominated slate lands. They are a heavy clay loam, generally underlaid by a stratum of soapstone. Of course the richer these lands are, the greater number of animals will they sustain to a given area; yet the nutritive qualities of the grass they yield, seem to be independent of the fertility of the soil. I know some lands of this class, which are by no means rich, yet they fatten cattle admirably.

As this article is intended to be suggestive rather than exhaustive of the subject, I shall trespass no farther upon your columns or the patience of your readers.—*Cor. South. Planter.*

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The above will be weighed in the bags, as guano is, and no charge made for bags hereafter.

JOSHUA HORNER,
WAREHOUSE, CORNER CHEW & STIRLING STS.,
aul Old Town, Baltimore.

JAMES BAYNES. JOHN B. BAYNES.

JAMES BAYNES & SON,

WOOL DEALERS,

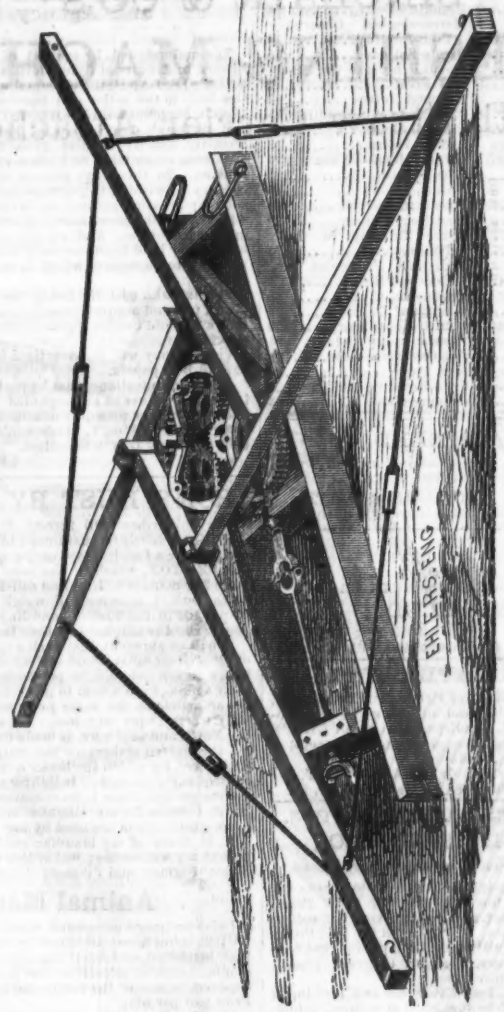
HOLLINGSWORTH STREET.

Near Lombard, between Calvert and Light sts.,

BALTIMORE.

REFERENCES:—B. Deford & Sons, Baltimore: Wethered Brothers, Baltimore; Benj. Bullock & Sons, Philadelphia; H. Robinson & Co., Philadelphia; J. W. Stitt & Co., Philadelphia; Wm. K. Strong, New York; C. J. & F W. Coggill, New York; G. W. Bond & Son, Boston; T. B Townsend & Son, Boston; Springer Harbaugh, Pittsburg Pa.; A. D. Bullock & Co., Cincinnati, Ohio. may

TRIPLE OR INTERNAL GEAR HORSE POWER.



The figure shows the construction of this very prominent Horse Power. It is simple, strong and durable, and (all things considered) the best Power in use.

Price No. 1, capacity 4 or 6 horses,	.....	$ 75.00
" " 2, " 6 or 8 "	.....	80.00
" " 2, Spur Gear, Horse Power,	.....	110.00
" " 3, " "	.....	140.00
" " 1, Bevel, Gear Power,	.....	110.00
" " 2, " "	.....	125.00

For sale by

R. SINCLAIR, Jr., & CO.

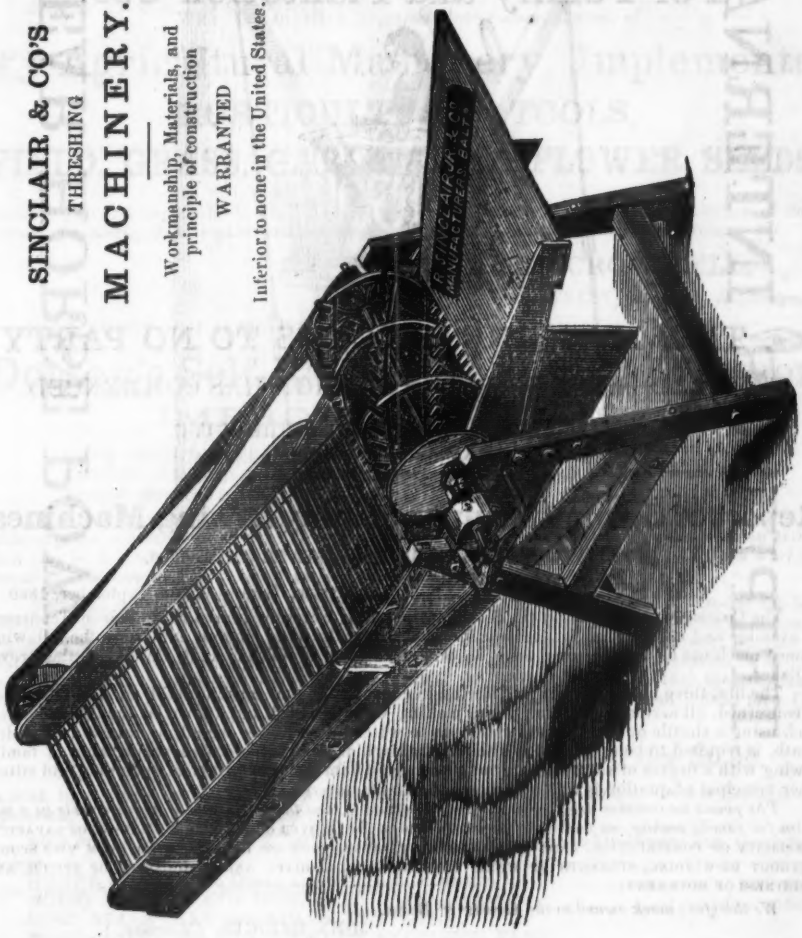
july

No. 62 LIGHT STREET, BALTIMORE.

SINCLAIR & CO'S
THRESHING MACHINE,
With Straw Carrier Attached.

SINCLAIR & CO'S
THRESHING
MACHINERY.

Workmanship, Materials, and principle of construction
WARRANTED
Inferior to none in the United States.



Width of Cylinder,	16	20	25	30 inch.
Price complete for Parallel Cylinder,	$55	60	73	85
Price complete for Spiral Cylinder,	60	65	78	90

Ditto without Straw Carrier, $15, 18 *a* 20 less.

DRIVING BELTS, $12*a*18, as per length. HORSE REVOLVING and GLEANING RAKES. HARVEST TOOLS of every description.

For sale by

R. SINCLAIR, Jr. & CO.

july No. 62 LIGHT STREET, BALTIMORE.

GROVER & BAKER'S SEWING MACHINES,

For Family and Plantation Use.

☞THIS MACHINE BELONGS TO NO PARTY!

ITS FIELD IS THE WORLD—ITS REIGN HAS COMMENCED.

THE ONLY MACHINE FIT FOR SOUTHERN USE.

Report of Committee upon Family Sewing Machines,

APPOINTED BY THE TENNESSEE STATE FAIR, 1860.

NASHVILLE, Tennessee, 15th September, 1860.

The Committee appointed by the State Bureau of the Seventh Annual State Fair of Tennessee, to examine and mark award for the best Family Sewing Machine, find on exhibition the following named machines in competition: the I. M. Singer, Wheeler & Wilson, A. B. Howe, and the Grover & Baker.

The first three named, although differing in construction and capacity, still, so far as the stitch is concerned, all arrive at the same point, making what is called and known as the *Shuttle Stitch*, each using a shuttle or shuttle and bobbin, on to which all the lower thread, or thread used underneath, is required to be re-spooled. The Shuttle Machine may be used upon some classes of family sewing with a degree of satisfaction: but we conceive from their construction, operation, and stitch, their principal adaptation is to the purposes of manufacturers.

The points we conceive most necessary and important to meet the wide range of requirements in a machine for family sewing, we find more fully combined in the GROVER & BAKER, viz: EXTENT OF CAPACITY, SIMPLICITY OF CONSTRUCTION, EASE OF MANAGEMENT, ADVANTAGE OF USING THREAD FROM TWO SPOOLS WITHOUT RE-WINDING, STRENGTH OF WORK, ELASTICITY, DURABILITY AND REGULARITY OF STITCH, AND QUIETNESS OF MOVEMENT.

We therefore mark award to the Grover & Baker.

JOHN HERIGES, *Chairman*,
J. W HORTON,
J. W. WILSON,
C. H. WHITE,
JAMES A. WOODS,
} COMMITTEE.

I HEREBY CERTIFY, that the above is a true copy of the original decision and award of the Committee upon Family Sewing Machines, appointed by the Tennessee State Fair for 1860.

L. P. WILLIAMS, *Secretary Tennessee State Agricultural Bureau.*

☞SEND FOR A CIRCULAR.

GROVER & BAKER Sewing Machine Co.,
nov-1y **181 BALTIMORE STREET, Baltimore.**

REMOVAL.

The undersigned, thankful to his friends and the public for the very liberal patronage bestowed on him during the two past years, respectfully informs them that he has removed to the large and well lighted warehouses,

Nos. 46 and 48 LIGHT STREET, Corner of Balderston,

Where he can offer a larger and better assorted stock of

☞Agricultural Machinery, Implements,

HORTICULTURAL TOOLS,

FIELD, GRASS, GARDEN AND FLOWER SEEDS,

Home grown and imported—to which he invites their attention and solicits a continuation of their custom, promising that no pains shall be spared on his part to render entire satisfaction.

RICHARD CROMWELL,

Nos. 46 and 48 LIGHT STREET, *Corner of Balderston.*

SOLE AGENT IN BALTIMORE for

Dorsey's Self-Raking Reaper and Mower,

IMPROVED FOR 1860.

CASH PRICE at Factory	$135
CREDIT—$50 Cash and 4 months' note, city endorsed, for $100	150
Freight added from Factory to Baltimore, say	5

Those wishing a *reliable* machine, one that will secure their crop of grain and grass with as little expense and small a force as with any other, by ordering early can be supplied with an article that may be depended upon with all confidence. Descriptive pamphlet Circulars, giving a working cut of the machine and all the particulars, furnished on application.

☞Also Agent for SHARE'S PATENT COULTER HARROW—Price $15. One of the best inventions of late years for the Farmer, and one which no one would do without after once knowing its value. Those who have used them all agree that as a pulverizer of the soil, whether on stubble or inverted sod, or for preparing the ground most thoroughly for the reception of seeds of any kind, and as a coverer of Grain and Grass Seeds, when sown broadcast, that the SHARE'S PATENT COULTER HARROW is superior to anything they have used or seen. Send for a Circular descriptive of it. Also in store,

THE WEATHERSFIELD SEED DRILL—Price $6.50.

A neat, light, hand implement, which deposits, covers and rolls all kind of Garden Seeds at one operation, in the most perfect manner.

BICKFORD & HUFFMAN'S DRILL, with the Improved Guano attachment and Grass Seed Sower.

HUNT'S DRILL, with Guano and Seed Attachment.

HORSE POWERS AND THRESHERS of different patterns.

CORN STALK, HAY and STRAW CUTTERS.

MONTGOMERY and VAN WICKLE'S EXCELSIOR FANS.

PLOUGHS, HARROWS and CULTIVATORS of all kinds.

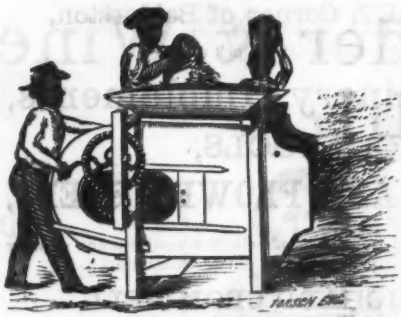
HARVEST TOOLS—a complete assortment. GRAIN CRADLES, with the genuine English Waldron Scythes attached. HORSE and HAND GLEANERS and RAKES. In fact, every article pertaining to the trade, at the lowest prices.

☞GARDEN SEEDS of my own raising and importation this spring from England and France—as also a fine collection of CHOICE FLOWER SEEDS, from Vilmorin, Andrieux & Co., Paris—and the different GRASSES, for both Pasture and Lawn; among them the celebrated HUNGARIAN GRASS SEED, which may be sown (3 pecks per acre) at any time in the months of May and June—price $2.50 per bushel.

RICHARD CROMWELL,

june LIGHT AND BALDERSTON STREETS, BALTIMORE.

5 SILVER MEDALS,
3 DIPLOMAS,
70 1st Premiums!



J. MONTGOMERY & BRO.,

155 NORTH HIGH STREET,

BALTIMORE, MD.,

Inventors and Manufacturers of their

DOUBLE SCREENED

ROCKAWAY GRAIN FAN,

Celebrated for their efficiency, durability and ease in working.

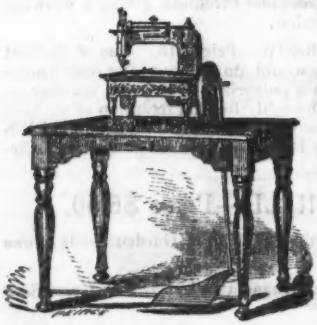
The undersigned, during the past year, as well as in those which have preceded it, had the fullest evidence of the superiority of their ROCKAWAY GRAIN FAN.

Wherever a test has been permitted, at any of the Cattle Shows at which their Fan has been exhibited, it has uniformly been triumphant—and the people of the South need not go North for the purchase of a Machine with which to cleanse their grain, for our Fan is unequalled, we believe, by any other ever introduced.

☞ The price of our Fans in Baltimore, is $34; and in Lynchburg, $36. Orders addressed to us at either place will receive prompt attention. A liberal discount to the trade.

The attention of RICE PLANTERS is called to our Fan, constructed for CLEANING RICE, which is the best for the purpose ever invented, and which costs $2 less than our Double Screened Rockaway Grain Fan.

mar



LADD, WEBSTER & CO'S

FAMILY AND MANUFACTURING

SEWING MACHINES,

No. 131 W. BALTIMORE STREET,

Between Calvert and South sts., Baltimore.

W. H. WALMSLEY, AGENT.

Let Manufacturers, Planters, Farmers, Housekeepers or any other persons in search of an instrument to execute *any kind of sewing now done by machinery, make sure they secure the best*, by examining ours before purchasing.

☞ SAMPLES OF WORK SENT BY MAIL. ☜

A FEW TESTIMONIALS IN FAVOR OF OUR MACHINES.

(*Extract from Letter.*)

LIBERTY TOWN, MD., July 2, 1859.

I am very much delighted with your Sewing Machine. It is just the right thing. Should I not be able to procure another, I would not take *ten times the cost* of it for it.

THOMAS CARR.

MOUNT PLEASANT, MD., Nov. 30, 1858.

MESSRS. LADD, WEBSTER & Co.—*Dear Sirs:* The Machine purchased from you in June last has been in constant use for tailoring purposes, and has stood every test to which it has been submitted, and gives entire satisfaction in every particular. The result of my experience is, that no sum, in reason, would induce me to part with it, if its place could not be filled with an exact counterpart I would most earnestly recommend all who want a really good Sewing Machine to examine yours before purchasing

JOHN W. OGBORN.

EASTVILLE, VA., May 10, 1860.

MESSRS. LADD, WEBSTER & Co.—*Gentlemen:* The Sewing Machine purchased for myself, and that for my friend arrived safely, and both are giving perfect satisfaction.

As regards the one being used in my own family, Mrs H. is so much pleased with it, that she says if she could not obtain another exactly like it, she would not take $1000 for it. Very truly, yours,

jan E. HOLLAND.

HICKOK'S

PATENT PORTABLE

Keystone Cider & Wine MILL.

This admirable machine is now ready for the fruit harvest of 1861. It is, if possible, made better than ever before, and well worthy the attention of all Farmers wanting such machines. It

HAS NO SUPERIOR IN THE MARKET,

And is the only machine that will properly grind Grapes.

☞ Orders now received by the manufacturer, payable January 1, 1862. For sale by all respectable dealers and the manufacturer,

W. O. HICKOK, Harrisburg, Pa.

HARRISBURG, March 1, 1861. april-6t

To the Farmers and Planters of the South.

FOWLE & CO'S
Soluble Phosphated
PERUVIAN GUANO!

The Best, Cheapest, and Most Permanent Fertilizer ever offered to the Agriculturist.

Approved by Professor CAMPBELL MORFIT, one of the most eminent Chemists of America, as the most reliable and efficient combination of

PHOSPHATIC AND AMMONIATED GUANOS

Yet offered in a REALLY SOLUBLE FORM. It is composed of

No. 1 Peruvian and Sombrero Guanos

OF DIRECT IMPORTATION from the CHINCHA and SOMBRERO ISLANDS, and is warranted FREE FROM ALL IMPURITIES.

This FERTILIZER has been severely tested, in comparison with Peruvian Guano, by many of the most successful and intelligent farmers of Virginia and Maryland, from whom we have received numerous letters and certificates of approval. We submit the following extract from Prof. MORFIT'S Report upon the SOLUBLE PHOSPHATED PERUVIAN GUANO, viz:

"*The above analytical results express a high value for this Fertilizer, and indicate that the formula for its preparation is founded upon sound principles of agricultural economy and efficiency. Though replete with the indispensable elements of a fruitful soil, the relative proportions are so skillfully adjusted as to promote their mutual action, and render it a most profitable manure, adapted for crops generally, without distinction as to kind.*" CAMPBELL MORFIT.

Prof. Morfit also in his recent article on Sombrero Guano, in the December (1860) number of the American Farmer, gives the Analysis of our Fertilizer, (*Analysis* A, *Table No.* 4 *of said article,*) and asserts that—

"*No other phosphatic material than the Sombrero could be made to yield a fertilizer like* 'A' *of Table No.* 4, *so affluent and yet so well adjusted in all the elements for profitable fertilization.*"

Copies of the above-named documents, together with Prof. MORFIT'S ANALYSIS, and other interesting matter, will be found in our pamphlets and circulars, showing that our FERTILIZER is far better adapted to general use than Peruvian Guano alone, besides being

SIXTEEN PER CENT. CHEAPER.

The SOMBRERO GUANO, before its combination with the PERUVIAN, is rendered IMMEDIATELY SOLUBLE by a process recently discovered and peculiarly our own. The value of PERUVIAN GUANO, presented in this modified and improved form, can hardly be over-estimated.

Price, $50 per ton of 2000 pounds.

Pamphlets and Circulars, containing more particular information, will be supplied by mail, and orders will be promptly executed upon application to our Agent, EDWARD FRANKS, No. 35 WILLIAM STREET, New York.

FOWLE & CO., Alexandria, Va.

Messrs. HENRY M. WARFIELD & CO.,

mar-tf **No. 16 SPEAR'S WHARF, Baltimore.**

PIANOS!

NEWMAN, BRO. & SONS,

ESTABLISHED IN 1825, BALTIMORE, MARYLAND, FIRST PREMIUM SOUTHERN MANUFACTURED PIANOS, WITH THE PATENT DOUBLE SOUNDING BOARD.

Recommended by the world-renowned Pianist, S. THALBERG, M. STRAKOSCH and the celebrated Violinist, H. VIEUXTEMPS, the greatest living artists in the world—also by Professors and Amateurs throughout the country. These Pianos have taken the *first honors wherever exhibited for competition* over all others, and have been awarded *Five First Premiums* during the Fall of 1859, at the different exhibitions in the various *States* of the Union.

Among the many superior advantages possessed by these instruments over others are that they have a DOUBLE SOUNDING BOARD, for which the Messrs. Newman have received *Letters Patent* from the United States Government. The advantage of this Double Sounding Board is, that they have *greatly increased sounding surface*, in the two distinct sounding boards, (while others have but *one only*,) and hence greatly increased volume and sweetness of sound, and, like a well made Violin, improves by use. They also have the full IRON FRAME, thereby adapting them for ANY CLIMATE, finished in *every style*, from the most elaborate development of taste in the decorative art, to the plainest and most simple style of neatness. (The *internal structure* and finish of all are nearly the same.)

All Pianos sold of our manufacture are warranted for FIVE YEARS—with the privilege of exchanging within six months, if not perfectly satisfactory.

☞ *Factory*, 510, 512, 518 *and* 522 WEST LOMBARD STREET. *Branch Wareroom, No.* 235 BALTIMORE STREET, *near Charles street, sign Miniature Piano.*

Pianos boxed and shipped to all parts of the world. All orders addressed to

NEWMAN, BRO. & SONS, Baltimore, Md.,

Or to our AGENTS in different parts of the country, will meet with prompt attention.

Also, G. O. PRINCE'S celebrated *MELODEONS* for sale at Factory prices—the best manufactured. oct-1y

PIANOS AND MELODEONS.

NUNNS & CLARK'S, AND STEINWAY & SONS' GOLD MEDAL PIANO FORTES.

The undersigned is constantly receiving new supplies of PIANOS from these celebrated Factories, which are considered by competent judges to be in point of tone, touch, workmanship, durability, keeping in tune and *not breaking strings*, superior to any made in the United States. He is constantly receiving the most unbounded expressions of satisfaction and delight from those who have purchased these Instruments—in fact every Piano sent out from these warerooms has been the means of effecting other sales. *F. D.* BENTEEN,

No. 10 N. Charles-st., and 80 W. Fayette-st.

☞SECOND-HAND PIANOS FOR SALE. Pianos exchanged. MELODEONS from $45 to $200.

ORGAN HARMONIUMS, for large Churches, with 8 stops and two rows of keys, $350.

Particular attention is paid to orders by mail. nov

BONE DUST AND POUDRETTE,

Warranted free from any mixture, having the Bone Dust in its natural or pure state. Fine or Stamped, by the bushel or ton.

POUDRETTE—A superior article and the cheapest Manure in the market, well adapted for Corn or any crop in the drill or hill.

REFERENCES:—John W. Randolph and N. B. Worthington, Baltimore; Thomas S. Mezeek and John Ridout, Annapolis; R. G. Browstor and J. Moull, N. Jersey. The above named practical farmers will testify to its merits.

FACTORY, Wilk street and Harris' Creek, Canton.

ORDERS left at the American Farmer office will be attended to. [d1] THOMAS BAYNES.

Highly Improved Breeding Stock.

After a long and extensive acquaintance with the relative advantages of various breeds of Horses for general purposes, I have no hesitation in breeding altogether of the Morgan stock, and have owned Black Hawk, and his son Post Boy, for eighteen months; the first was sired by the famous Black Hawk, the best grandson of Justin Morgan.

They will stand at my stable, or I would sell Post Boy, having use myself for but one.

I am breeding Short Horn Cattle, and have now and usually have Young Bulls and Bull Calves for sale, and Calves of both sexes nearly thorough-bred, which I will only recommend where suited to go and worthy. Also a well bred Devon Cow and her Heifer, nearly 2 years old. I will sell low.

I raise only the Chester County Hogs (white) and will sell the best Pigs at weaning time or older. They are unquestionably the best Hogs I am acquainted with, and their cross for Pork on native sows, is probably equal to full bred.—They, as well as my Cattle and Horses, have rarely failed to take first premiums in their classes at our Fairs. For particulars address me.

S. W. FICKLIN,

ap-6t *Belmont, near Charlottesville.*

A MAN BY THE NAME OF NORRIS,

THOMAS NORRIS,

KEEPS AN

Agricultural Implement and Seed Store

On Pratt Street, No. 141, in Baltimore City.

He keeps pretty nearly everything in that line. Any kind of a

PLOUGH, HARROW,

Cultivator, Corn Sheller,

WHEAT FAN, RAKE, HOE, &c.

That you may want, you can get them of him. He keeps the best GRUBBING HOES in the whole country; they sell at *a good price*, but are worth the money. He sells a *very superior* AXE, too—he seems to have an aversion to selling indifferent Implements. He sells about the best

Thresher and Cleaner

In the whole country; sold quite a large number this year, and expects to make a *young fortune* on that *one* Machine; he can give you a list of names nearly as long as your arm, of first rate farmers, that bought this year, and all *perfectly delighted*. He sells *first rate* plain THRESHERS, too, and the *very best*

HORSE POWERS.

ANYTHING you want in the Implement and Machine line, you can certainly get from NORRIS, if it is to be had at all, and at the right prices—so you need not be wondering if he *keeps this, that* or the *other* thing. Just send your order—it matters not whose make the article may be—if it can be had in Baltimore, and *he* is satisfied that *you are* "all sound on the *pay* question," you'll get the Machine, from an Apple Peeler up to that *great, grand* WESTINGHOUSE THRESHER AND CLEANER. He is going to have something "mighty nice" next year in the way of a

REAPER AND SELF-RAKER.

Look out for *that* Machine before you buy. Now remember you can get anything you want, either of Implements, Machines or Seeds, (*provided* you pay or satisfy him you will pay,) from

THOMAS NORRIS,

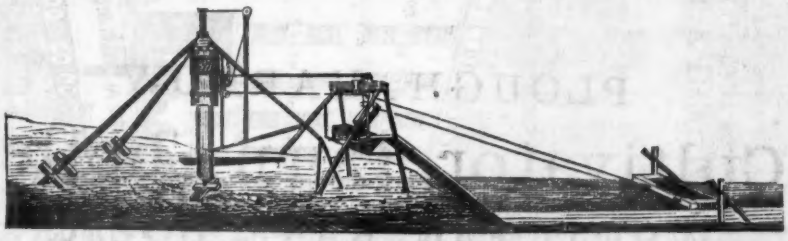
141 PRATT STREET, BALTIMORE, MD.

N. B.—NORRIS is Agent for

HERRING'S PATENT FIRE AND BURGLAR PROOF SAFE,

Which is conceded to be the best and most reliable Safe in the world. oct-tf

BRYAN'S AGRICULTURAL MARL AND MUD LIFTER,



A STRONG AND DURABLE MACHINE, WHICH CAN BE WORKED BY ORDINARY FARM HANDS.

THE PURPOSE OF THIS MACHINE IS

To Raise the Deposit from the bottom of Ravines, Coves, Creeks, Rivers, or other places inaccessible to Teams.

The machine works with facility 170 feet from the Capstan, and, if well attended, will remove a large cart load every five minutes on an average. For raising marl, a different bucket is made, having a strong steel lip and a steel coulter on each side of the bale, cutting its way free both going out and returning, and will lift any marl clear of rock, or into which a spade or shovel can be forced.

The Bucket is made of the best Boiler Iron, and is so constructed that it deposits its load into the hopper, through which it passes into the cart—the labor of shoveling not being required—and by a reversed motion of the Capstan is carried out for another load.

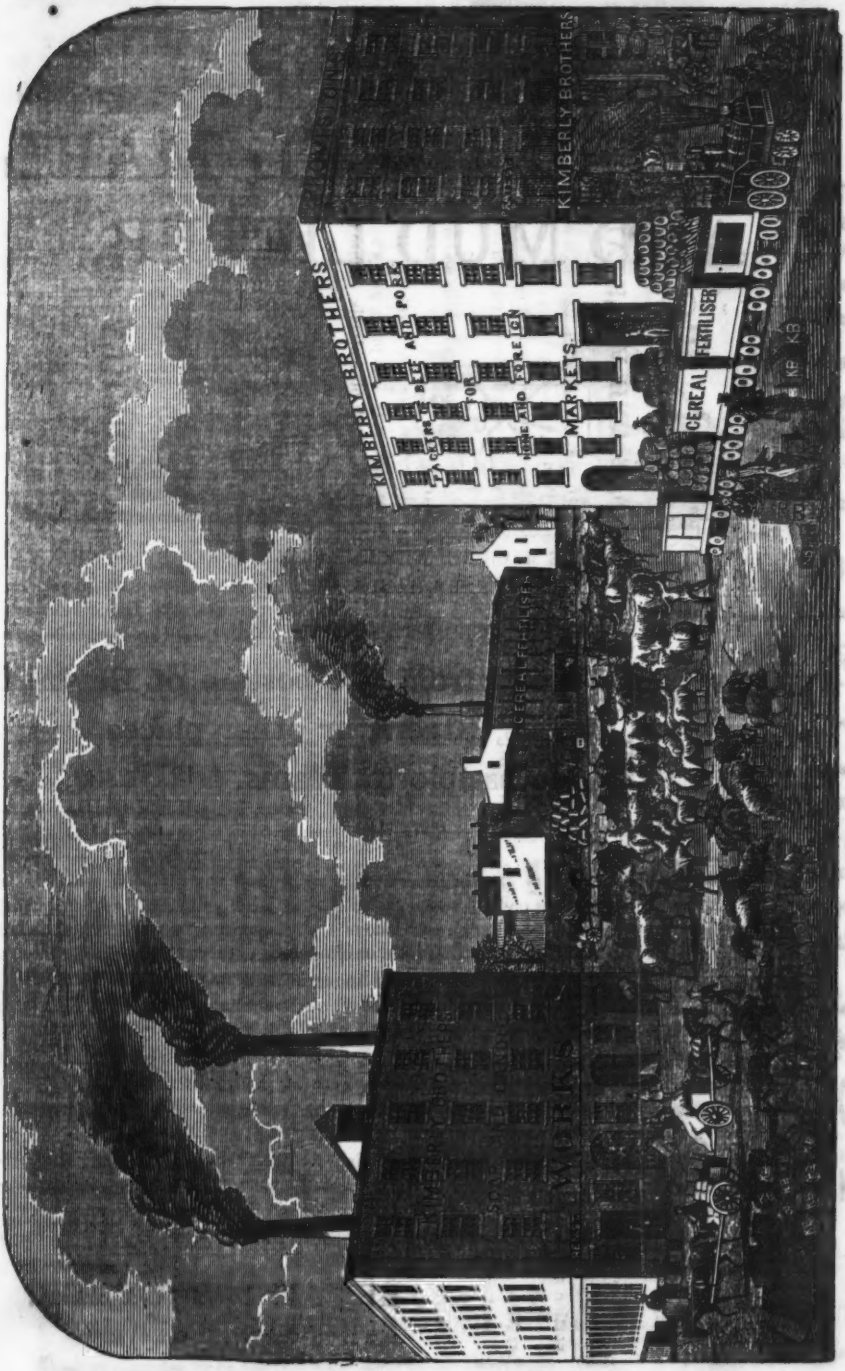
With the Drum—thirty-two inches in diameter and twelve feet lever—two horses are required to work it in mud. The Drum can be reduced in diameter to suit the consistency of the marl—but one man and a boy are required to operate it. By referring to a drawing, with clear explanation, sent with each machine, any ordinary carpenter can put one up without difficulty.

But a few pieces of roughly hewn timber are required for the frame. Every thing else complete, with chain and rope enough to send the bucket 170 feet from the capstan, is furnished in Baltimore for the sum of $225, cash.

All orders promptly attended to or information given at LARRABEE'S FOUNDRY *corner of Front and Plowman streets, Baltimore, Md.*

BRYAN & BROTHER.

october



KIMBERLY BROTHERS, MANUFACTURERS OF THE CEREAL FERTILIZER.

FOR SPRING CROPS.

KIMBERLY'S
Animal Compost or Cereal Fertilizer!

FOR CORN, OATS, WHEAT, RYE, TOBACCO, GRASS AND VEGETABLES.

We would call the attention of Farmers, Planters and Gardeners to our Compost, as particularly adapted to Spring Crops, on account of the large proportion of Nitrogen it contains, and because its Nitrogen is less volatile than Salts of Ammonia or Peruvian Guano.

AS RECOMMENDED BY DR. DAVID STEWART, Chemist of Maryland State Agricultural Society, who says it contains twice as much Nitrogen as Nitre and Ammonia. As the Nitre does not evaporate, consequently it is better adapted to Spring Crops, and would recommend it as a top-dressing to Wheat or Grass Lands at this season.

We have of the above valuable Fertilizer, prepared for Spring sales, about **1000** TONS, which has been put up in beds and undergone decomposition for more than two years, which makes it more valuable than anything we have yet offered to the Farmer.

We have now been engaged in the manufacture of the above Fertilizer extensively for nearly six years, and we think all who have purchased it and given it a fair trial, will give us the credit at least that we have given them a reliable article at an extremely low price, and who will not say it is a low price, when we assure them it is composed entirely of Vegetable Matter, Blood, Bones, Cracklings, Fish, Flesh of Animals, Refuse from Soap Kettles, such as old Bacon Grease, &c., together with No. 1 Peruvian and Phosphatic Guanos, to bring it to standard.

We assure the Farmer we have a standard for every pound we manufacture. The above being put up in beds of say 200 tons each, after being up for two years or longer is cut down, turned over, screened out, samples taken and sent to Dr. David Stewart for analysis, under whose instructions and under the eye of one of our firm every article is carefully weighed and manipulated to bring it to standard—therefore Farmers can rely on getting a pure article, and that at $20 per ton, worth as much, pound for pound, as Peruvian Guano, because it permanently benefits the land.

To poor and worn-out lands our Fertilizer is particularly adapted, having every element the plant requires. Farmers having that description of land will find it greatly to their advantage to give it a trial, the cost being trifling when compared with other Fertilizers in the market, while the results will compare with the best.

PRICE—$20 PER TON OF 2000 POUNDS—CASH.

For sale by **KIMBERLY BROTHERS,**
CORNER OF PRATT AND PATTERSON STREETS.

We have on hand also, LEACHED ASHES, mixed with Liquor of Bones and Meat boiled in refuse Lye from Soap Kettles—a cheap article for Agricultural use. Also, REFUSE SALT.

march

Page's Patent Portable Circular Saw Mill & Page's Horse Power,

AreMachines that no owner of a well appointed farm can afford to be without.

All kinds of timber may be sawed into fencing stuff with little or no waste—there being a gain of more than one-half in the amount of fencing that the same timber will yield when sawed over the old style of split rails, to say nothing of the increased neatness and durability of the fence thus made.

All the timber necessary for farm purposes, for the building of barns, barracks, cattle sheds, fences, &c., can be sawed at odd times, when hands and horses would otherwise be idle, and at an expense so light that the cost of sawing will not exceed the ordinary cost of hauling to and from the old-fashioned saw mills. Our Horse Powers are stronger and will last longer than any others built, and are as well adapted to general farm use as for sawing.

We manufacture also PORTABLE and STATIONARY STEAM ENGINES of various sizes and best workmanship.

Our Portable Engines range from 6 to 27 horse power, and are, as their name imports, strictly portable, capable of being moved from place to place by from 2 to 6 horses. The small sizes are well suited for farm and plantation purposes, to thresh wheat, gin cotton, &c. The larger ones for all the general uses to which steam is applied.

Descriptive catalogues sent to any gentleman who may apply. Address,

mh1-tf GEORGE PAGE & CO., BALTIMORE, MD.

HENRY GIBSON,

(Late BURNS, RUSSELL & GIBSON,)

MANUFACTURERS OF DRAIN TILE,

LOCUST POINT, BALTIMORE, Maryland.

All Letters and Orders must be addressed to the CARE of E. G. LIND, Architect, CORNER OF CHARLES AND FAYETTE STREETS, when they will secure prompt attention.

2 inch Round Tile	$11 per 1000 feet.	4 inch Round Tile	$30 per 1000 feet.
3 " "	17 " "	4 " " 1-6 long	34 " "

COLLARS EXTRA.

4 inch Round Tile, 2 feet long, with Collar, 9 cts. per foot—5½ inch Round Tile, 2 feet long, with Collar, 13c per foot.

Particulars respecting large Socket Pipes and Sole Tiles will be forwarded on application as above.

All these Pipes are made of the finest clay by skilful and experienced workmen; they are clean in the bore, and so thoroughly burnt as to be impervious to frost, and will bear comparison in quality and strength to the best goods manufactured in the world; a premium for which was awarded me at the Norfolk Show. dec-6t

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NITRATE OF SODA,
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Five "Bates" and "Booth" Herd Book animals, from three to twenty-five months old, unsurpassed in style and symmetry of form—and of the purest and most fashionable blood so much sought after in Europe.

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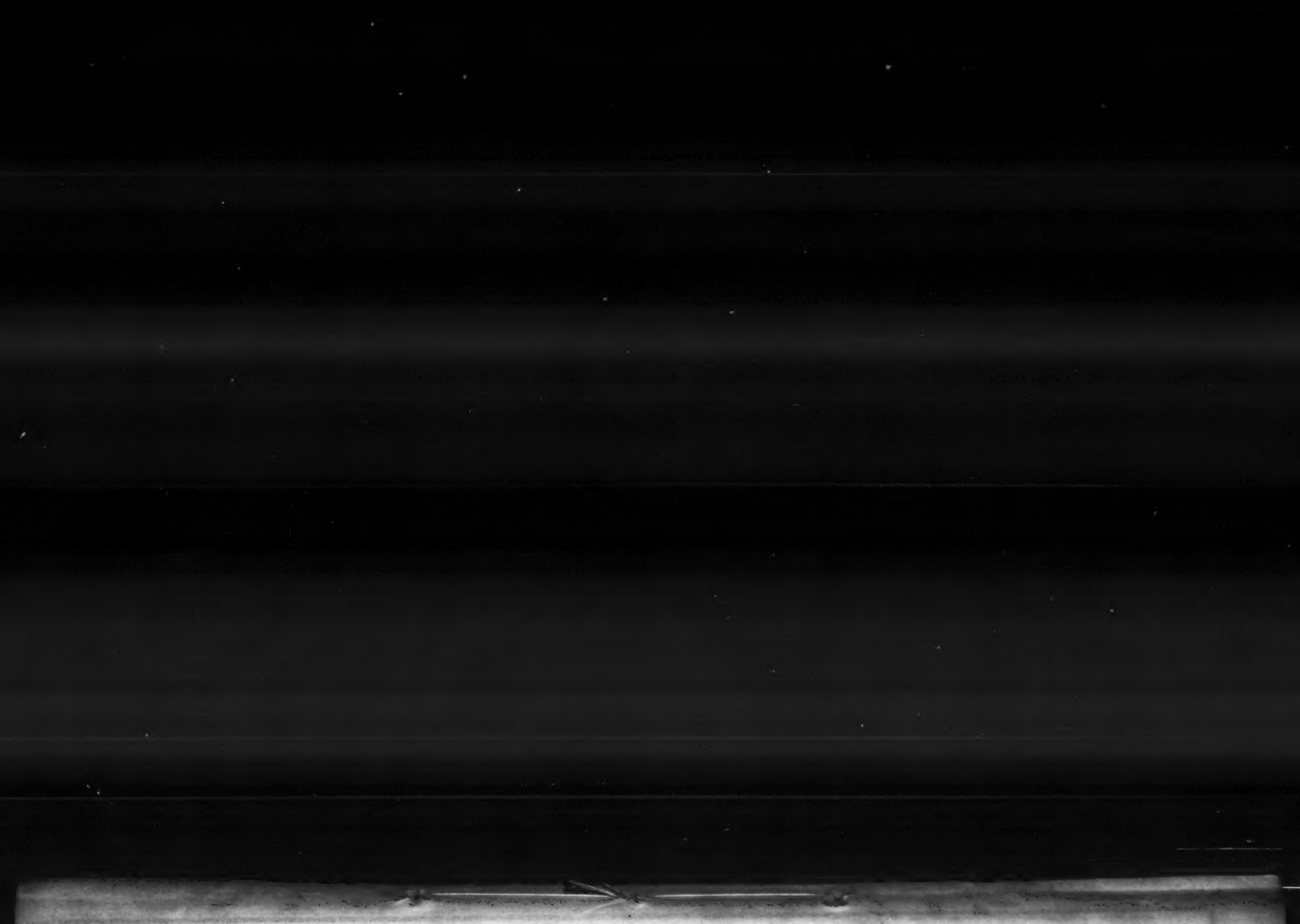

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MANIPULATED

GUANO!

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VALUE AS A FERTILIZER.

We are fully prepared to supply all orders, and guarantee that the article we offer is not surpassed in quality by any fertilizer now in the market. Our Guano is composed of the

Best Peruvian Guano,

The Richest Phosphatic Guano,

And Finely Powdered Bone,

And we warrant every lot we sell to be

One-half Peruvian Guano,

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Iron Cylinder Grain Drill,

—WITH THE—

IMPROVED GUANO ATTACHMENT

—AND—

GRASS SEED SOWER.

PATENTED AUGUST 17, 1858. MANUFACTURED BY

Bickford & Huffman, Baltimore, Md.

This Drill is universally acknowledged, where it is known, to be the most perfect machine ever invented for sowing all kinds of grain, and every description of Fertilizers in a concentrated form. It is so constructed, with the different sized gear wheels, as to sow any desired quantity of grain, from one to four bushels to the acre. In its arrangement for distributing guano, lime, plaster, ashes, &c. either in a damp or dry state, it differs from and excels all other drills ever before offered to the public, a separate box for these Fertilizers being attached in front of the Grain Box, from which the manure is evenly and perfectly delivered in the tubes, and is deposited with the grain in the drill furrow. This attachment is so constructed to be used either with or without the Grain Drill. In addition to this improvement, we have also attached a Grass Seeder, for sowing grass or Clover Seed broadcast, which may be used either in front or back of the drill tubes.

The proprietors have been engaged in the manufacture of Grain Drills for over ten years, and have been continually making improvements. They now with confidence offer their improved Drill to a discerning public, and warrant it to give entire satisfaction. Reference will be given, on application to the proprietors, to responsible persons, in almost any state in the Union. Hundreds of certificates are in possession of the proprietors, testifying to the superiority of this machine over all others.

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PRICES:

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8 " "	85 00	GRASS SEED SOWER	10 00
7 " "	80 00		

All orders promptly filled and information given by application to

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july-1y